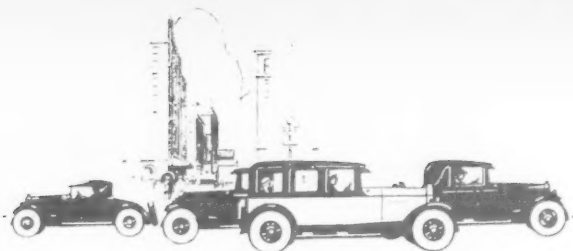


AMERICAN FRUIT GROWER MAGAZINE



June, 1926
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Fire Blight of Apples and Pears

By T. J. Talbert

University of Missouri

FIRE BLIGHT is one of the greatest hazards of the apple and pear industries. The losses occasioned by it are enormous. It is doubtful if any other disease of apples and pears causes a greater annual loss. Young orchards consisting of susceptible varieties may be wiped out in one season, and the crop in bearing orchards may be reduced from 25 to 50 per cent or more. The loss of fruiting wood (fruit spurs) may be great enough to permanently impair or decrease greatly for several years the quantity of fruit produced. Some varieties of these fruits are much more susceptible to the disease than others.

No perfect remedy or measure of control has as yet been discovered. The most effective remedy, however, consists in ridding the fruit plantation of the source of the disease. Pruning, cutting out and burning the so-called "hold-over" cankers during the winter in pear and apple orchards should be helpful. The eradication of hold-over cankers should be supplemented by the control of injurious insects which spread fire blight. To these control measures should also be added the regulation of the growth of the trees, and if the grower gives some attention to the matter of growing the more resistant varieties, he will generally succeed better against fire blight.

The disease was known and described in the Hudson River Valley of New York as early as 1794. Its exact origin is uncertain, and it now occurs not only in the United States and South Canada, but in Australasia, Italy and probably other countries. Fire blight is now widely distributed throughout the United States. In the western states fire blight is regarded as the most destructive disease of the pear, having threatened the pear industry and caused millions of dollars of damage and heavy expenditures of money for control and prevention. It was probably brought to the West from the eastern states about 25 or 30 years ago.

Susceptibility of Different Varieties

There is no commercially profitable variety of either pear or apple which is entirely immune to fire blight, yet there is a great difference in susceptibility. Under Missouri conditions, the most susceptible commercial varieties of apple are York, Jonathan, Transparent, Benoni, Willow, Early Harvest and Wealthy. Those that might be classed as moderately susceptible are Ben Davis, Gano, Missouri (Pippin), Maiden Blush and Rome, while the most resistant varieties are Winesap, Delicious, Grimes, Oldenburg (Duchess), Collins, Stayman and Ingram.

Fire blight generally injures Bartlett, Clapp Favorite and Flemish Beauty more seriously than such varieties as Kieffer, Garber, Seckel and Lincoln. Immunity from fire blight with both apples and pears may depend more upon the disseminating agents (insects), the presence of hold-over blight cankers, and the rapidity and period of growth, than upon any real inherent immunity of a particular variety.

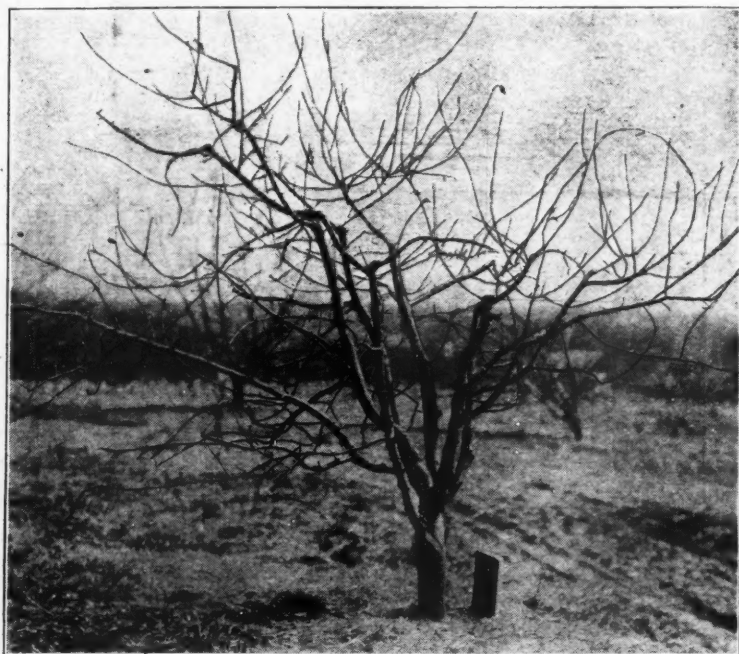
The disease is generally known as

fire blight, although other common names are given it, such as pear blight, blossom blight, twig blight, fruit blight, blight canker, collar blight, blight, sun scald and canker. Since the name fire blight may be applied to the disease on any of its host plants, it is the most appropriate common name. The names mentioned are often applied to the disease in various combinations. In every instance, however, they mean the same

disease or the same organism causing the malady. The term fire blight is applied to the disease which may kill a part or all of the plant affected.

Appearance of Fire Blight

Fire blight may affect seriously the tender leaves; twigs and fruit blossoms. As a result, the injured parts appear blackish or brownish, resembling the effect of scorching by fire; hence the name fire blight. During



A York apple tree after pruning out branches badly diseased with fire blight

severe cases of infection, the entire outer surface of the trees may take on a brown or blackish appearance due to the killing of the new growth of leaves and twigs. At times the fire blight affects the blossoms more seriously than the leaves and twigs. Where this is true, the blossoms wither, turn brown or black and finally die. Blossom infection may range from five per cent or less to 75 per cent or more.

On the twigs, branches and trunks of both pears and apples the disease causes the bark to wither and separate from the green live bark. The point at which the dead bark is pulled away from the live bark is generally indicated by an open crack or line, which is often referred to as the line of demarcation. The sunken areas and the lines separating live and dead bark are very characteristic of fire blight and are important factors to be taken into consideration in identifying the disease. The dying and dead bark may appear as water soaked and assume the blackish or brownish color mentioned.

Fruits Affected and Extent of Injury

Fire blight is most injurious to pomeaceous fruits, such as the pear, apple, quince, wild crab apple, hawthorn and Juneberry. It has also been reported as affecting slightly the apricot and the plum. Pear and apple nursery stocks often suffer seriously from fire blight. In some cases apple nursery stock may even be more seriously injured than pear stock. The disease attacks the leaves, twigs, fruits, branches, trunks and roots of the trees. Usually, however, the twigs and blossoms suffer most. Twig infection may in one season proceed from the current season's growth into wood one, two or more years old.

Causes and Symptoms of the Disease

Fire blight is a bacterial disease caused by *Bacillus amylovorus* (Burr.) Trev. The entire life history of the organism is passed within the softer tissues of the bark, cambium and new wood of the living plants. It passes the winter in hold-over cankers, mainly on pear trees, although a few varieties of apples, like Jonathan, York and Transparent, may develop hold-over cankers in the spring and early summer which will afford a place for the disease to pass the winter. The organism passes the winter in a dormant condition in the tissues near the margin of the blight cankers.

In the spring the bacteria become active, multiply rapidly and affect the adjoining healthy tissues. From the margin of these cankered areas, particularly on the pear, a sticky exudation teaming with blight bacteria may ooze out on the bark. It has the appearance and consistency of honey and may stand in little beads on the young blighted leaf stems, twigs and fruits. This bacterial ooze is a source of infection. Some investigators have believed it possible for the bacteria in the exudations to be carried by wind-borne mists, although this belief is generally discredited for Missouri conditions. Raindrops

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Prevention of Grape Diseases

By Arthur S. Rhoads
Florida Agricultural Experiment Station

THERE are four important methods of preventing or retarding the development of grape diseases. These consist of (1) the selection of a suitable vineyard site; (2) the selection of varieties adapted to the vineyard site; (3) vineyard sanitation; and (4) spraying and dusting. Let us consider these factors in detail.

The Selection of a Suitable Vineyard Site

In selecting a site for a vineyard, prospective grape growers should fully realize that no variety of grape will tolerate "wet feet." Land lacking adequate natural drainage should never be planted to a vineyard under any condition unless good drainage by artificial means can first be assured at a reasonable cost. In this connection, it may also be stated that grapes in general do best on soils otherwise suitable where the water table is fairly constant throughout the year. Grapes grown in soils that, when wet, are too wet, and, when dry, are too dry, are bound to suffer more or less from root pruning occasioned by these extremes in the relative position of the water table with respect to the root system.

Moreover, in the selection of a vineyard site, it should be borne in mind that the fungous diseases make greatest headway under conditions favorable to the retention of moisture on and about the vines. For this reason avoid low spots, locations along streams or irrigation or drainage canals and along stretches of timber, where the vineyard will be partly shaded or sheltered from the wind, especially from the south side. These situations not only lack good air circulation, but they favor the retention of moist conditions which are so favorable for the development of fungous diseases. For the same reason, the rows of trellised vines should be laid out north and south in order to facilitate the drying action of the rising sun. Sites on southern slopes are preferable to those on northern ones. For the same reason also, the rows should not be spaced too closely, nor should the vines be spaced too closely within the rows.

The Selection of Varieties Adapted to the Vineyard Site

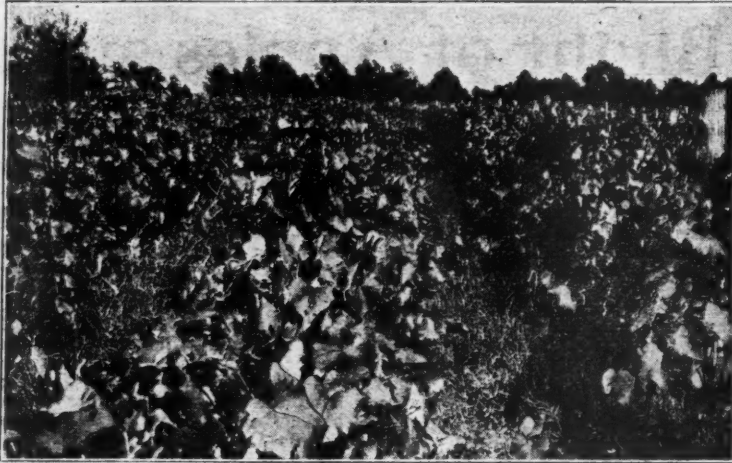
Although there are many varieties of grapes that are being grown successfully in different parts of the country, it must not be assumed that all varieties will do equally well in any particular section. Practical experience demonstrates that a variety of grape will succeed better in the climate and soil where its progenitors were naturally developed than in very different soils and climates. Grape varieties often exhibit decided preferences for different types of soil, soil moisture requirements and climatic conditions, and those varieties that thrive in one particular locality or on one type of land may not do so on another. For example, many varieties will tolerate a highly calcareous soil while others planted on such soils soon develop a chlorotic condition of the foliage and die. Varieties of species native to high, arid regions, as are the European grape (*Vitis vinifera*) and all the species west of the Rocky Mountains, where the air is too dry to permit the growth of rots and mildews, with the exception of the powdery mildew, are quickly attacked and greatly weakened or destroyed when grown in low situations with a humid climate. Likewise, vines of species growing in regions where phylloxera does not occur, when planted in regions infested by it, soon perish from its attacks.

Aside from the usual consideration of grape varieties with regard to the purposes of the planting, therefore, one must also be governed in his selection by the character of the soil, drainage, uniformity of the water table throughout the year, climatic conditions and topography of the area to be planted

and select those varieties that are best adapted to thrive under the existing local conditions.

Generally speaking, those varieties that contain a relatively high percentage of vinifera blood do best in the drier sections and on the higher and better drained situations where air drainage assists nature in warding

that have been culled out, or that may have accumulated on the ground about the packing shed, should be cleaned up and burned or buried instead of allowed to lie about and provide a source of infection to the vineyard the following year. When the vineyard is pruned, those canes bearing numerous anthracnose or black rot



Full stand of grapevines in well-drained end of a vineyard

off the inroads of the fungous diseases, to which these finer types of grapes are particularly subject.

Vineyard Sanitation

The inauguration of a general system of vineyard sanitation will prove a most valuable means for controlling the more important fungous diseases of grapes and materially diminish, although by no means obviate, the need for their control by spraying. Any measure that will help to eradicate the causal fungi in their winter quarters will be of importance in the control of these diseases. Since the infection of vineyards by anthracnose, black rot and certain other fungous diseases in the spring is initiated by the dissemination of the spores devel-

opment of the infected canes, tendrils and old mummied fruit, including both that which adheres to the vines and that which may have fallen to the ground, it is highly desirable to eliminate these sources of infection of the new growth as far as is practicable. When infection of the new growth occurs in the spring, the opportunities for further infection have been increased a thousandfold.



This picture shows how poor drainage in one end of a vineyard caused the death of many vines from *Clitocybe* root rot

After the work in the packing shed is over, the litter of rotten berries

injure the roots of the vines. A grape hoe may be used to work up close to the vines to turn the remaining dirt and debris back from the vines into the furrow. This tillage of the vineyard, in addition to being good viticultural practice, serves to bury the fallen rotted fruit and diseased leaves so that the spores discharged later cannot infect the vines.

It is highly desirable that good soil drainage be maintained in order to reduce the amount of surface moist-

ure and to facilitate a more rapid drying after rain. Air drainage is also of much importance, especially in vineyards located in valleys or on level land, since a good circulation of air facilitates the rapid evaporation of surface moisture from the vines after rain, dew or fog and thus retards the germination of spores and subsequent infections. Allowing the vines to grow too dense, having the trellis wires too low, or allowing them to sag, greatly retards the circulation of air through the vineyard. For the same reason the shoots should not be allowed to hang down to the ground, nor should basal shoots be allowed to spread out over the ground, for they constitute prime centers of infection for such fungi as anthracnose, black rot and downy mildew. Weeds and grass are not only a detriment to good air drainage but in addition, they help to increase the humidity of the air about the vines and thus favor the development of the fungi, to say nothing of their detriment as users of valuable soil moisture. The vineyard should be kept in a good state of cultivation throughout the growing season, after which a cover crop should be planted.

Remove Diseased Berries

The picking off and subsequent destruction of diseased berries during the growing season is often attempted as an additional means of vineyard sanitation. This practice is regarded of considerable value in a vineyard nearly free from rot, but it would not be practicable in a badly infected vineyard. In the former case it is highly desirable to promptly rid the vineyard of scattered diseased berries, since each one may become a source of infection to adjacent ones that may not have been thoroughly sprayed, and to newly developing shoots and leaves of the vine. Since each rotten berry must be removed in any case before the bunches are packed, it is far better to remove them while the bunch is still growing so that the space left may be filled in by the other berries, thus making a more compact and attractive looking bunch.

Covering the bunches with paper bags of a good quality, which are securely fastened by twine to the supporting cane, soon after the blossoms fall is usually an effective means of preventing fungous and insect attacks. It also affords excellent protection against attacks by birds and injury by hail. This is very laborious and expensive, however, and is practicable only where a small number of vines is grown or where special market prices make it advisable to grow high class table grapes. Where but few grapes are grown, bagging is more satisfactory than spraying insofar as protecting the fruit from rot and mechanical injuries is concerned. Spraying, however, in addition to protecting the fruit, is of considerable value in protecting the foliage and shoots of the vine from attacks by fungi and insects and thus increases the general health and vigor of the vines.

Vines should always be maintained in a thrifty and vigorous state of growth by good cultural practices, fertilization and spraying. It is universally conceded that unhealthy vines are more subject to attacks by fungi and insects than are those kept in the prime of condition. Vines that have acquired a weakened or sickly condition should be examined without delay to diagnose and correct, if possible, the cause of the trouble. They should then be stimulated by the application of some nitrogenous fertilizer, such as nitrate of soda, sulphate of ammonia, stable manure, etc.

The factors which have been described are fundamental in character and must receive attention if the best results are to be attained. In addition to giving proper attention to these factors, spraying and dusting must be practiced. These will receive consideration in the next issue.

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What About Summer Pruning?

By R. H. Roberts
University of Wisconsin

"SUMMER PRUNING" of apples is a term used to cover a multitude of treatments. The practice originally given this name seems to have been the pinching or tipping of an immature growth which is actively vegetative, much as black raspberries are commonly summer pruned. The theory of this treatment was to hasten bearing by changing the course of development from vegetative extension to blossom bud development. Obviously, any result from this treatment could come only if the pruning was done before growth was completed and before there was a change actually produced in the type of vegetation. Sometimes work is done on trees which are through growing when the treatment is given. Quite naturally negative results are secured. With very actively growing trees, such as young peach trees which are producing secondary branches, some types of summer pruning have marked effects upon blossom bud formation. It cannot be expected that this result will follow from all pruning done in the growing season. It is not the fact that pruning is done, but it is the quality of growth which results in blossom buds.

Removing the Undesirable Branches

An entirely different kind of cutting is also done under the title of summer pruning. This is essentially a dormant season pruning in which cross and crowding and undesirable branches are removed. This treatment rarely has the hoped-for effect of producing increased blossom bud formation. Instead, the thing that happens is a reduced size of tree as well as a considerably reduced root system. There seems to be little practical use of doing this type of cutting in the summer time for the purpose of inducing earlier bearing.

There is, however, a very proper and profitable kind of pruning that can be done on older bearing trees while they are in foliage. This is the cutting out of weak wood which blossomed, but which was so poorly vegetative that no fruit or only cull fruit

developed. While this same pruning could probably be done better in the dormant season, some growers feel that they can judge the wood better when it is in foliage than when out of leaf. It is believed, however, that practice will make it just as easy to distinguish this undesirable wood in the dormant season. The time to become acquainted with it is just previous to harvest. Make some careful observations as to where the cull apples are produced and also as to where no apples are borne. This inspection will disclose the pruning that is needed. While it would probably have a better effect if done in the dormant season, this

thinning out of run-out wood can be very well done while the tree is in leaf. This kind of summer pruning really accomplishes a desirable end.

Admit Light From Above

There is another kind of pruning for another purpose and done at another time which can be profitably used. This is the thinning out of branches in the upper third of the top of dense non-bearing young trees to admit more light. The object is to promote early bearing. No branches are removed from the bottom of the tree, as this seems to delay bearing. Also, no tipping is done. The thinning

is done shortly after growth has started to avoid the increased number of new growths that usually force out following dormant season pruning. Few suckers arise and the top remains open to light during late May and early June while conditions affecting blossom bud formation are being established.

In cases of varieties of young non-bearing trees which produce very long seasonal growths and very few spurs, which are slender and "weak," another variation of this early-growing-season pruning may sometimes be used. In addition to the thinning out of branches, which seems desirable to secure good light conditions, the ends of the long branches may be cut back a few inches into the previous season's growth. The way in which this pruning is effective is through production of thicker, plumper wood growth, which is characteristically associated with blossom bud formation. In other words, the result is opposite to the slender growth usually resulting from dormant season tipping.

The diameter of the wood growth produced appears to be a good measure of the value of any growing-season pruning which is done for the purpose of getting young trees to bear. As a rule, the lack of blossoming of dense young trees is associated with the very slender type of growth which they make. Practices which increase the proportion of leaf products or carbohydrate materials in the top of over-vegetative trees, tend to give growths of greater diameter and with this, blossom buds. Such a condition can be brought about by limiting the supply of water or mineral food materials, such as nitrogen salts, by the following means: (1) by concentrating the manufactured materials in the top of the tree, as with girdling; (2) by pruning to admit more light; and (3) by such special practices as tying down some of the branches.

Use Judgment in Practicing Summer Pruning

No general rule can be laid down
(Concluded on page 24)



A young Transparent tree before and after summer pruning. The top was too dense to permit blossom bud formation. Only the top portion was thinned out. Pruning at the bottom of such trees would tend to delay bearing. Excessive lower branches should be removed after bearing begins. Judicious summer pruning helps to produce blossom buds

Apple Sports

By U. P. Hedrick
New York State Agricultural Experiment Station

THE QUESTION of bud sports has attracted particular attention within the last year or two. Last year a case of sporting in the apple was reported which brought forth a large amount of publicity. Within recent years we have also heard reports of sporting in Northern Spy, the Gravenstein and several other varieties of apples. These circumstances have aroused a new and keen interest in the question of bud sporting. What are bud sports; how do they originate; and are they likely to be permanent?

Few Varieties Originated as Bud Sports

It is generally supposed that many orchard varieties have originated as sports, but a study of the history of fruits does not show this to be true. Not more than half a dozen of the several hundred apples described in "The Apples of New York" are reputed to be sports. None of the 1500 grapes, or the 2000 plums, the 4000 pears, the 3000 peaches, the 800 cherries, or the several hundred small fruits described in the fruit books published by the New York Agricultural Experiment Station can certainly be recorded as sports. There are, however, in nearly all of these fruits strains of certain varieties which have originated as sports.

The supposition that varieties of fruit commonly originate as sports could do little harm were it not for the fact that many fruit growers do not distinguish between a sport and a variation brought about by soil, climate, nutrition and stocks. There may be little or no difference in ap-

pearance in the two kinds of variation, but there is a wide difference in them under propagation.

The fluctuating variations found in every orchard due to environment and nurture—as productiveness, the size of fruit, color, flavor, and so on—are never transmitted so far as is yet known. They pass out with the individual bearing the variation. There is, for example, no evidence to show that the most productive Baldwin trees in an apple orchard, or that Northern Spys bearing the largest apples, transmit productiveness and large size of fruit when buds and scions from them are used for multiplication of these trees.

Many Exaggerated Statements in Catalogs

There are many exaggerated statements in nursery catalogs as to the value of propagating plants from trees showing desirable variations, but such statements usually savor so much of personal gain, and are backed with so little real evidence, that fruit growers must wholly discount them. It is true that several experimenters have brought forward some evidence in the past few years to show that varieties can be improved by bud selection, but this evidence is not now generally accepted. Perhaps it is too soon to wholly judge the value of the evidence, but there is negative evidence and the accumulative knowledge of centuries of fruit growing to disprove it.

For 30 years an effort has been made to bring together on the grounds of the New York Agricultural Experiment Station all of the improved strains of old varieties of fruits, the claims for which seem the most reasonable. There are now many records of apples, pears, plums, cherries, peaches, grapes and small fruits sent to us as "improved." Some came with the statement that the improved strain bear larger fruits or that the product was better colored; or that the trees were more productive or less subject to disease than the parent; or, in still other cases, the crop is earlier or later than that of the normal variety. Nearly all of these supposedly "improved fruits" are identical with the varieties from which they came. Most of the strains which were really different from the variety from which they were reputed to have come were worthless; a few have value because of a better color, color being the only characteristic in which an improvement in any of the new strains has been noted. All of these sports of value have occurred in apples and pears; a considerable number, however, have appeared, both on the grounds of this station and in other parts of the country, in the grape, but none have marked value.

Color Sports Rather Common

Several varieties of apples, as Gravenstein, Duchess, Northern Spy and Twenty Ounce, have in past years

furnished many sports of the apple. Delicious now seems to be another variety of this fruit which is furnishing sports and may be expected to furnish a considerable number more. The sporting character in all of these fruits is in color. Bright red or darker red variations of the parents appear from time to time in widely different localities—at least these are the sports that are usually noted. No doubt, were they worth keeping a record of, striped, russeted and strains with less red than the normal parent would be found to occur quite as often. Usually sports of apples originate as a branch of the parent tree; occasionally, however, as in the case of the Hitchings' red Twenty Ounce, they originate as a sporting tree.

The several red strains of the varieties of apples named are identical with the parent variety in all tree characters and in all fruit characters except as to color. In most of these fruits, however, since the crop may be picked as soon as the apples are well colored, there is a decided advantage in the strain other than that of appearance, since in nearly all red apples it is sometimes necessary, in order to secure the desired color, to let them hang on the tree so late that the product becomes water cored on the one hand or mealy on the other when harvested; in the redder strains these troubles are avoided by earlier picking.

Extreme Color Often Due to Environment

It must be said that every variation in color in an apple will not be transmitted. Horticulturists in experiment
(Concluded on page 24)

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Sprayed Apples Carry Little Arsenic

IN VIEW of the large amount of publicity which has followed the arsenical scare in England, it will be interesting to know the results of some analyses made with reference to the amount of arsenic carried by apples.

Dr. Frank T. Shutt, Dominion Chemist at Ottawa, Canada, collected 43 samples of apples from various sections of Canada. Examination was made of the arsenical content of skin, calyx and stalk, as it is generally agreed that the flesh of an apple is free from arsenic and that only ponderable amounts may be present in the skin.

In 1903 the Royal Commission on Arsenical Poisoning placed the limit of arsenic trioxide for arsenical poisoning at .01 grain per pound. The medical dose of arsenic trioxide given in the British Pharmacopeia for 1924 is 1/64 to 1/16 of a grain.

Dr. Shutt found that about half the samples of apples were entirely free from arsenic; about one-sixth showed traces of arsenic in amounts less than .0001 of a grain per pound; and about one-third of the samples carried arsenic in amounts ranging from .0001 to 1/190 grain per pound.

Thus it is seen that the largest amount of arsenic found was 1/190 of a grain per pound of apples. A person would need to eat three pounds or about one dozen apples of average size to receive the minimum medical dose of arsenic, and about 12 pounds or four dozen apples of average size to receive the maximum medical dose.

Some interesting analyses have also been made by Scott Dodd of Edinburgh, Scotland. Several varieties of apples received from the United States contained arsenic as follows: Spitzenburg from Oregon, .0072 grains per pound; Rome Beauty from Oregon, .0015; Winesap from Washington, .0046; Newtown Pippin from Oregon, .0103; Newtown Pippin from Washington, .0034. There was practically no arsenic in the inside portions or in the cores. Mr. Dodd estimated that a person would need to consume almost two pounds of apples a day and to eat the entire apple, including skin, ends and core, before he would obtain the minimum medical dose.

The more that one hears about this whole

proposition, the more he is compelled to believe that the arsenical scare in England is the result of some insidious propaganda intended to discourage the consumption of American fruits. We believe that American fruit growers should take precautions to use no more arsenic than is necessary to properly control codling moth, but at the same time, we believe that they should by no means discontinue the use of arsenical compounds in the fear that they will be rendering their fruit unfit for marketing purposes. Certainly the public, both in England and in this country, can be made familiar with the facts in such ways as will promote their confidence in the wholesomeness of American apples.

Should Farmers Be Expected to Agree Unanimously?

IN VIEW of the discussions which have taken place during the last few months in regard to agricultural relief, a lot of people, mostly politicians and others with special interests, have expressed great concern over the fact that all of the farm leaders have not been able to agree on the program which was presented to Congress. "How can we be expected to pass legislation for agriculture when the farm leaders cannot agree among themselves? Let them get together and agree unanimously on a plan and then we shall be glad to enact it into law." Such statements have been made by more than one of our law makers.

The taking of such an attitude is pretty good evidence that the possessor of it is not sincere. In all probability, he is opposed to farm relief legislation and is seeking to find an excuse to justify his position.

In our opinion, it is quite encouraging that such a large proportion of farm organizations and farm leaders were able to agree on the program recommended to Congress. This in itself is strong evidence that the legislation proposed possesses great merit.

In this connection, we must remember that legislation affecting any large group of people is rarely approved by all the organizations and leaders of that group. The Federal Reserve Act is one of the best laws on the statute books of the country; yet the opposition of banking interests to it when it was under consideration was terrific. Nevertheless, it was enacted into law and it has brought us the soundest financial system in the world. The tariff bills always meet great opposition; yet a new tariff law is passed every few years. Why should all of our farm organizations and farm leaders be expected to agree on agricultural relief when the same thing does not occur in the case of any other group? Those who are asking the farm folks to agree unanimously are simply trying to sidestep the issue.

Committee's Recommendation Vetoed

IT WILL be remembered that at the annual meeting of the National Council of Farmers' Co-operative Marketing Associations there was a division of opinion with reference to agricultural surplus legislation. Aaron Sapiro of Chicago, Judge R. W. Bingham of Kentucky, and a few others held out firmly against legislation along lines of farm surplus control, while others favored it. It was stated by those in position to know that enough votes could have been mustered to swing the convention in favor of agricultural relief legislation, but that in view of the personalities involved it was thought inadvisable to press the question to such a conclusion.

Instead of doing this, the convention referred the matter to a special committee with instructions to investigate and report recommendations. Suggestions were made from some quarters that a considerable proportion

of this committee was hand picked. At any rate, the committee brought in a report against farm surplus legislation. The executive committee apparently did not want to assume responsibility for the report and in its meeting on March 31 submitted the report to the member associations for a referendum vote. In this referendum, the results of which have just been made public, 238 votes were cast in favor of the report and 1713 against it. Thus, the report of the special committee which opposed farm surplus legislation was voted down by the member associations by an overwhelming vote. There seems to be no question as to how the farmers and farm leaders scattered over the country feel about this matter.

How to Thin Fruit

THE BEST way to get the fruit thinned properly is to take your boys or the hired men out to the orchard, show them how to do the job and then go back to the house. It is awfully hard for the owner to take off all of the fruit that ought to come off and to continue to do so until the task is finished. If you stay on the job, there is great danger that you will change your mind and leave more fruit on the trees than they can mature properly.

Red Apples for a King

THE RETIRING Yugoslav Consul-General at New York, Pavle Karovich, who is soon to return to his native land to take the post of Foreign Minister, will carry with him back to Serbia two precious packages to the royal family from the American Yugoslav Society. In one package are two red apples, one each for King Alexander and Queen Marie; in the other a new baseball for the two-year-old Crown Prince Peter. In intrusting the society's mission to Mr. Karovich at a banquet given in his honor Prof. Michael I. Pupin said that these tokens of American friendship were "two gifts representing the best products of this blessed land."

Prof. Pupin asked the Consul-General to offer the presents to the members of the Yugoslav royal family to remind them of American friendship. The two apples, he said, are "the symbol of the fullness of heart with which our beloved Uncle Sam always has aided the noble aspirations of Yugoslavia, confirming only yesterday the good will of his generous spirit when he canceled two-thirds of Yugoslavia's debt to the United States." Of the gift to the young Crown Prince he said the American baseball is a "symbol of everything which spells joy and happiness to the American boy."

The presentation of two apples and a baseball sets a new precedent in royal gifts. They are a far cry from the days when royal gifts were diamond coronets and richest fabrics of famous looms for her Majesty the Queen and crown jewels and robes for his Majesty the King, bestowed with all the pomp and circumstance of military and diplomatic ceremonials.

There is authority for the statement that no country in the world excels the United States in quality, quantity or variety of its apples. And certainly no other country can touch America in the production of baseballs. Prof. Pupin is quite justified in his choice of two gifts "representing the best products of this blessed land" to send to the Yugoslav monarchs.—New York Sun.

LEUTENANT-COMMANDER R. E. Byrd, whose successful flight to the North Pole attracted world-wide attention, is a brother of Gov. H. F. Byrd of Virginia, who is the largest and one of the most successful apple growers in Virginia and who wrote an article for our March issue.

Essentials in Strawberry Culture

Part III—Fruit Bud Formation

By George M. Darrow

United States Bureau of Plant Industry

LAST month we discussed the strawberry roots and their functions. The roots take in water, nutrient materials and oxygen as well as anchor the plant in the soil. The water and nutrient materials pass through the roots and the crowns to the leaves. Though a slight amount of water is used by the plant in food manufacture, most of it is transferred into the air through "stomata," which are minute openings on the underside of the leaves. A constant stream of carbon dioxide enters the leaf through the stomata during sunlight, and a similar stream of oxygen and water vapor is given out. The carbon dioxide is combined in green leaves with the nutrient materials taken up by the roots to form the food materials used in growth, and in the formation of buds, flowers and fruits.

A plant set in the spring has a small root system, a crown and perhaps one small leaf. It must develop an extensive root system and a number of leaves before it can become a fruit-bearing plant. Besides just growing, the strawberry plant must some time develop a fruit bud which contains the flower bud. In most of the United States the common commercial varieties blossom and fruit in spring and early summer only. If a plant of such varieties is pulled and picked to pieces before it starts to grow in the spring, the flower buds are easily seen with the unaided eye. In late October of the previous fall, the same flower buds could also be readily seen, though they would be quite small. Fruit bud formation therefore takes place before winter begins.

In the first article on the strawberry, we told of the work of six men who contributed greatly to the modern strawberry. Here we give credit to four men who have told us what we know of fruit bud formation in this fruit.

The late Prof. Goff of Wisconsin first studied the time of fruit bud formation in the strawberry, and in 1900 found the first traces appearing in late September. Rev. H. E. Morrow, while a student at the Iowa Agricultural College in 1906 and 1907, studied the development of fruit buds in the strawberry in Iowa and he likewise found that late September was the time when the first traces could be found. Recently Mr. Ruef and Prof. Richey of the Iowa Agricultural College made an extensive and detailed study of this question and found the first traces of fruit buds on September 1, and continuous differentiation of fruit buds from that time until the middle of December. It is therefore probable that fruit bud formation extends from September 1 to severe freezing weather over the central and northern United States, varying a little with the season, section and variety.

In central Florida, where the Missionary variety is grown, the plants are commonly set from July to December. If planted in October, under usual conditions, they will blossom and ripen fruit continuously from November until the next April or May. Near Miami in southern Florida the strawberry behaves in the same way. In California, the Marshall variety produces a heavy crop in April and May, but continues to blossom and fruit throughout the summer. Fruit bud forma-

tion must therefore take place in Florida throughout the winter, and in California in late fall, winter and through the following summer.

Little is known of the causes of

explanation might be possible, but under conditions in southern Florida the nights are not very cool before the plants begin blossoming and fruiting. It seems more probable that whatever affects a certain balance of

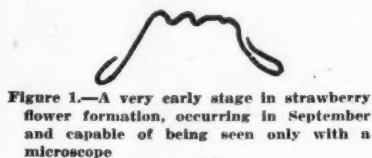


Figure 1.—A very early stage in strawberry flower formation, occurring in September and capable of being seen only with a microscope

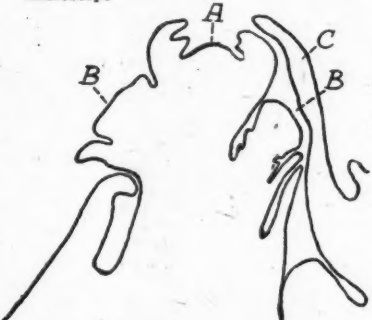


Figure 2.—A fruit bud of the Dunlap on October 26, much enlarged. A, primary flower; B, two secondary flowers; and C, leaf

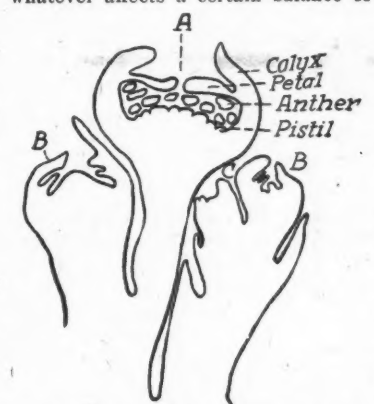


Figure 3.—A Dunlap flower bud as found by Morrow on November 9, 1906. A, primary flower; B, secondary flower; and C, tertiary flower

food materials in the plant starts the development of fruit buds. Short days of late fall and winter, cool nights or

CHART SHOWING THE TIME OF DEVELOPMENT OF STRAWBERRY FRUIT BUDS.

Date Collected	First Runner Plant	Second Runner Plant	Third Runner Plant	Fourth Runner Plant	Fifth Runner Plant
Sept. 7, 1924	First trace				
Sept. 15, 1924	Primary flower	First trace			
Oct. 10, 1924	Primary, secondary and tertiary flowers	Primary and secondary flowers	Primary and secondary flowers		
Nov. 17, 1924	Primary, secondary, tertiary and quaternary flowers	Primary, secondary and tertiary flowers	Primary, secondary and tertiary flowers	Primary and secondary flowers	
Dec. 13, 1924	Primary, secondary, tertiary and quaternary flowers.	Primary, secondary, tertiary and quaternary flowers.	Primary, secondary, tertiary and quaternary flowers	Primary, secondary and tertiary flowers	Primary and secondary flowers

fruit bud formation in the strawberry. Morrow suggested that the cool nights of autumn started fruit bud formation. For strawberries grown in central Florida in winter and in parts of California in summer this

cool days, or perhaps extreme contrasts between day and night temperatures, may so affect the balance of food materials as to start fruit bud development.

The fruit bud develops rapidly in

the strawberry. Under a high power microscope, it appears first as in Figure 1. Instead of having a rather sharp growing point, as appears earlier in the summer, it has the broadened one as shown. A month later it appears as shown in Figure 2, where three flower buds are already well started. After two more weeks anthers and pistils begin to show as in Figure 3. Ruef, however, found fruit buds as early as October 10 in the more mature plants with a development equal to that shown in Figure 3.

The accompanying chart, developed by Ruef, shows that the fruit buds apparently develop earlier and more completely on the first runner plants formed than on the later formed ones. The last formed runner plants barely develop fruit buds before winter. In most of the north and northeastern strawberry regions all or almost all of the fruit buds are developed in the fall. In North Carolina, however, strawberries have an early so-called "ground crop" and later a "crown crop," which may develop from fruit buds laid down in the spring.

If the fruit buds of the strawberry develop in the autumn, the grower wishes the strongest buds possible to develop before winter in order to get the largest possible crop the next spring and summer. Certainly weak plants form weak fruit buds and few and small fruits. Thrifty, strong plants are essential. Ruef found a much higher percentage of winter killing among the later formed weaker plants.

Although we need much more information on fruit bud formation to answer some of our questions fully, already certain suggestions may be made.

1. The late formed weaker runner plants are less hardy and are less productive than the earlier formed ones. A good stand of early formed plants is desirable.

2. The plants should have abundant moisture and fertile soil to develop the thrifty strong plants which contain well developed fruit buds.

3. Clean cultivation should be given throughout late summer and early fall, while fruit buds are being laid down.

4. In parts of North Carolina the plants are commonly fertilized in August or early in September. It seems probable that the growers have learned by experience that its use at that time is of greatest value. Judicious use of fertilizers at a similar time in other places may prove equally valuable.

Strawberry Flowers

Strawberry plants go into the winter with a considerable number of leaves. Though the strawberry is an

evergreen plant, during the winter most of the leaves die. When spring comes, only a few of them are left. But within a month after growth starts in the spring the plants are blossoming, and in less than two months a crop of fruit is produced. How can such a small plant accomplish so much in such a short time?

The answer lies partly in the fact that when spring arrives the strawberry bud or crown contains all the flowers that appear later as well as several leaves ready to open with the first

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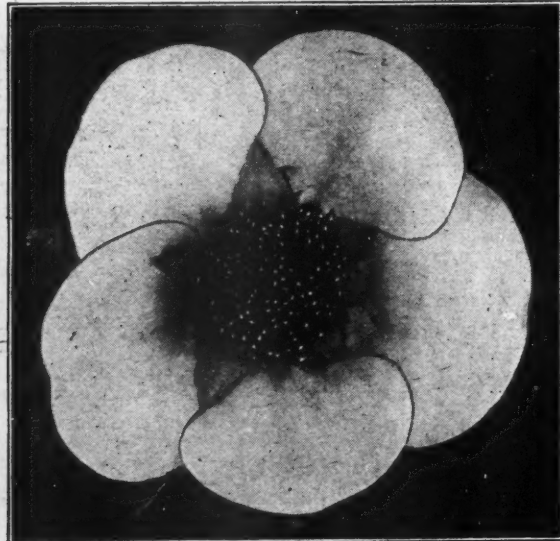
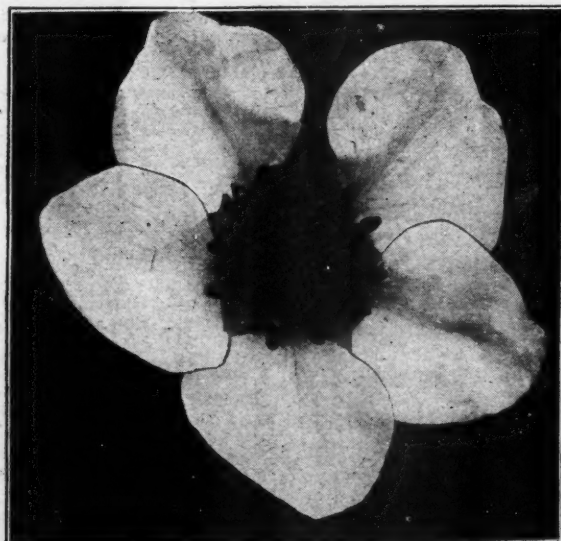


Figure 4 (Left).—A perfect strawberry flower. Even though having both pistils and stamens, such a flower may not produce a berry, since the pistils are sometimes sterile. Figure 5 (Right).—A pistillate or imperfect strawberry flower

Date Growing—A Fast Developing Industry

By Guy Trail

SOUTHERN ARIZONA has at least 10,000 acres in the lower irrigated valleys suited to date growing, according to Dean J. J. Thornber of the Arizona College of Agriculture, who predicts date culture will be the leading horticultural industry of the state within a short time. In the opinion of commercial growers in the Coachella Valley of California, a yield of 1,000,000 pounds last year will double during the next 10 years. Conservative men who have made a study of date culture in both sections say that the total acreage in dates in both states now is not more than 1200, that the industry is in its infancy. All are agreed that the next 25 years will see phenomenal increases in commercial plantings. No less an authority than Dr. Walter T. Swingle, agricultural explorer for the United States Department of Agriculture and importer of most of the early date varieties to this country, declares that the Salt River Valley of Arizona "promises to become the outstanding date growing region in America."

Five Date Growing Districts

The limiting factors in date growing—temperature and humidity—have set apart five major districts in the Southwest as pre-eminently adapted to the culture of the palm. These are the Coachella and Imperial Valleys in California and the Salt River, Yuma and Gila Valleys in Arizona. There are several minor districts in both states.

"The date palm, queen of trees, must have her feet in running water and her head in the burning sky," says an old Arab proverb. This was a rather grandiose way of stating these essentials for successful culture: a long growing season and hot moderate winters; low humidity at time of pollination and ripening; and ample irrigation water. These factors put down such rigid limitations that the production of dates in the United States is limited to such a small potential area that the industry will never reach the point where the market will be saturated.

The date must have abundant heat to bear fruit. The date palm can bloom without danger of injury when the mean temperature reaches 64 degrees Fahrenheit, so this has been taken as a basis to compute the heat units necessary to mature a crop in any given location. In order to produce dates on a commercial scale, there must be at least 3000 heat units in excess of 64 degrees Fahrenheit. Comparisons, based on a summation of heat units, reveal that the date growing districts in the United States have temperature factors favorable and oftentimes identical with those of the date producing districts of southwestern Asia and central and northern Africa.

Heat Units of Old World Sections

Bagdad, where dates ripen commercially, has 7017 heat units in excess of 64 degrees Fahrenheit, while Indio in the Coachella Valley of California has 7100.

Biskra, an Old World producing center, has a summation of 5489, while Phoenix in the Salt River Valley of Arizona has 5523. Yuma, Ariz., has 6176, according to computations made by Prof. D. W. Albert of the University of Arizona.

But finding temperature determinants for the date palm was the easiest part of the program. Palms had to be brought from Africa and Mesopotamia. Still more important, some genius had to assume the role of wet nurse and grow the beautiful but frail things to maturity. The story of introductions and early struggles, hidden away in obscure bulletins and uncolored reports of our plant explorers, has never been told in its entirety, but there is romance and adventure in every line of the tale.

Date Growing

Date palms were growing in Ariz-

zona as early as 1863, and crops were picked in 1865. In 1880 Col. F. C. Hatch made a planting in the Salt River Valley of Arizona, and from some of his palms a cluster of the fruit was gathered in 1887 and sent to the Department of Agriculture at Washington. Favorable reports from

The few palms that survived were carefully watched by Prof. James W. Toumey until they came into production. By calling attention to these survivors of the first importation, he kept alive interest in date culture and induced the horticulturists at Washington to go after more palms



A commercial palm garden in Arizona in full production

scattered seedling palms in Arizona and California induced the department at Washington to import some of the better varieties from the Mesopotamia and Egyptian date districts. In 1889 the first importation of dates was made by the United States Department of Agriculture,

in 1898. Today in Arizona he is credited with the lion's share of the work in establishing date growing in the United States.

When the department got ready to go after the second batch of palms, it entered into an agreement with the University of Arizona to establish the



Date palms growing in Coachella Valley, California

rooted offshoots being taken from the Algerian Sahara, Egypt and Mascat. Of the 1147 offshoots then imported, 967 were planted at the Tempe (Arizona) Experiment Station and 180 at the Yuma (Arizona) Experiment Station. Many of these palms died, some were lost in floods, and others proved to be seedlings or males.

first commercial date orchard in this country. The location was to be at Tempe, Ariz.

Offshoots Brought From Africa

Since 1898 the Arizona date experiment stations have received 1147 rooted offshoots from northern Africa and Arabia. Of the 600 that lived, half proved to be inferior varieties

and were discarded. From those that were left, date experts have finally agreed that not more than six or seven varieties are really deserving of space in a commercial garden.

While this pioneering was going on in Arizona, southern California was not idle. Several men of vision saw in the torrid Coachella Valley a counterpart of the Sahara desert and began to reason that dates would grow there. Bernard G. Johnson, dubbed "the American Arab" by his admirers, got possession of some palms for experimental purposes in 1904 and 1908. He planted about 10 acres as a private garden near the government date experiment station at Mecca, Calif. It was not until 1913 to 1915, however, that Coachella growers got a start in a commercial way. During this period about 15,000 offshoots, comprising choice Old World varieties, were brought in and distributed to prospective growers at \$2.78 each.

The palms of the early importations began bearing in six or seven years after planting and immediately there arose another major problem. The fruit did not mature uniformly. Experiments failed until the Tempe Experiment Station started working with heat. Then it was discovered that the fruit of the date palm could be artificially ripened by heating the partially ripe dates. Moreover, prolonged heating dehydrated the fruit to a point where it would keep several weeks without souring. By the use of this process, fresh dates may be kept from 20 to 60 days, depending on the variety. Arizona growers are now shipping ripe, fresh dates to all parts of the United States; California growers have gone them one better and are sending packages abroad.

Improve Propagation Methods

The ripening problem surmounted, the pioneers turned their attention to propagation. The loss of offshoots from imported palms had been very serious, conservative estimates placing it at 80 per cent. Gradually the technique of severing offshoots from the base of the mother palm was mastered. The growers learned that the offshoot needed frequent irrigation after planting. The whims of many individuals were discarded and cultural methods standardized. Recently developed methods have made it possible to root offshoots on the palm before removing them, and it is now possible to grow 90 to 95 per cent of the offshoots. Dates can be propagated from seed, but seedling palms run about half male and half female and, as a rule, a grower must wait five or six years before he can determine the sex of his palms.

The University of Arizona horticulturists, who have 20 years of experimental work with varieties to back them up, are ready to suggest the best varieties for planting just when it seems that this information will be most appreciated.

Deglet Noor, Hayana, Saidi, Macktum and Iteema are the varieties recommended both by Prof. D. W. Albert of the university and Director T. L. Stapley of the joint state and government experiment garden at Tempe, Ariz. Deglet Noor has been the favorite variety with most of the California growers.

Industry Is On Safe and Sane Basis

The date industry, although new, is on a safe and sane basis at the present time. And the men responsible for its development want to keep it there. They want it definitely understood that many pitfalls await those who rush in blindly and expect to get rich quick. The initial investment in starting a date orchard is from \$1000 to \$2500 an acre, according to Arizona growers. Then, too, intelligence and persistency must be put to work with this capital, if the date garden is to be brought into profitable production.

Now consider the profit side. In

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try

Eradicating Honeysuckle in Apple Orchards

By F. D. Fromme

Virginia Agricultural Experiment Station

THE COMMON honeysuckle (*Lonicera japonica*) is a beautiful and useful plant—in its place. Its place, however, is not the apple orchard. It forms an attractive covering for old stone fences or otherwise bare and ugly outbuildings, and its usefulness on hillsides and in ravines in preventing soil erosion is well-known. The fragrance of honeysuckle on a warm night in spring is all that could be desired. But the fruit grower whose orchard is infested is not apt to appreciate its beauty or fragrance, its hardness and vigor. To him it is a noxious weed, a difficult handicap to cultivation, a stealer of water, and a protector of mice.

An Escape from Cultivation

Of Asiatic origin, the species in question has escaped from cultivation, especially along the Atlantic seaboard. As a weed, it is most troublesome from Maryland southward. Its occurrence in many localities has been attributed to its introduction by railroad companies who have used it extensively to protect embankments. It becomes established readily from root or stem cuttings or from seed, and it is a poor soil indeed that will not support it in luxuriant style.

The honeysuckle problem in fruit growing is of recent origin. The plant is established in all of the important fruit sections of Virginia, and it is especially prevalent and noxious in Piedmont orchards. It is in this section that the control methods to be described have been developed by the Virginia Agricultural Experiment Station.

There has been no satisfactory method of honeysuckle control in apple orchards in the past, and fruit growers who have attempted to lick it with plowing and harrowing and grubbing have invariably fought a losing battle. Honeysuckle responds to harsh treatment and hard words in the same manner that it does to kindness; it continues to grow and spread.

The question, "How can I kill honeysuckle in the orchard?" has been asked at each meeting of the Virginia State Horticultural Society for the past eight or ten years. The answer has been long in coming, but it is here at last, and it has all the earmarks of a good, practical answer. In brief, it is this: "Strain the waste oil from your Ford and spray it on the honeysuckle vines in the spring, repeat the dose in mid-summer and the following spring if necessary, and the job is done."

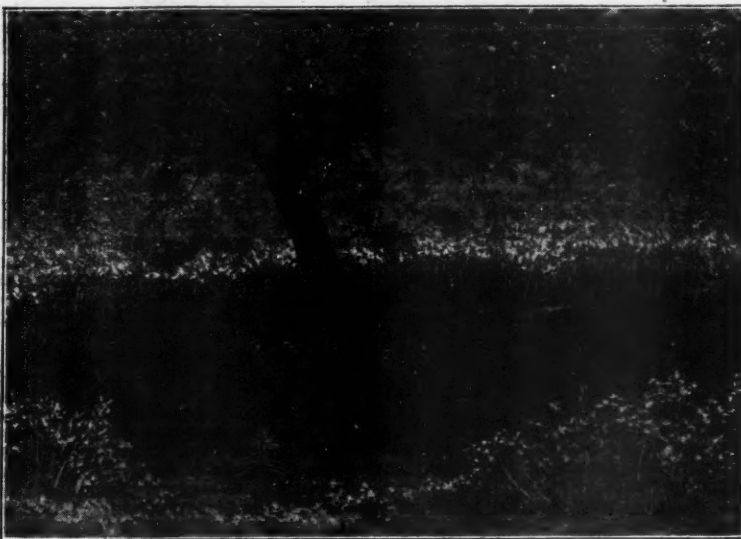
The more complete answer with the qualifications, the ifs, ands and buts, is as follows:

The value of oil in honeysuckle eradication has been determined through two years of experiments in

Virginia by R. H. Hurt, Assistant Plant Pathologist. Thorough and timely applications of lubricating oils and of emulsions of these oils have given very satisfactory results. Fruit growers who had despaired of successful eradication have embraced the new method eagerly. Waste engine oil could formerly be obtained at filling stations for the asking, but in localities where it has been tried on honeysuckle the demand has quickly obliterated the supply and a market for unused oils has been created.

Cost of Treatment An Important Item

An inquiry into costs was irrelevant



The dark area under this tree was sprayed with oil emulsion. Note that plant growth, including honeysuckles, has been destroyed.

so long as a free waste material could be obtained, but it was distinctly in order with materials that run into money as rapidly as oils do. The later phases of the experiments were, therefore, pointed especially towards costs. Various oils and dilutions of oils were compared as to cost and efficiency.

All of the lubricating oils tested were effective in killing honeysuckle, and the lighter, cheaper oils, such as straw oil and Diamond paraffin oil, are, therefore, to be preferred. Fuel oils are not satisfactory.

Tests of diluted oils, of emulsions of oil, water and casein, proved them to be of equal value to undiluted oils in certain concentrations. An emulsion containing 25 per cent of oil killed honeysuckle dead enough to satisfy a most exacting coroner. The lower limits of effective dilution have not been determined, but a saving of three-fourths of the oil is not bad as a starter.

Oil emulsions for honeysuckle spraying are prepared by the same process as the home-made emulsions for the dormant spraying of fruit trees, but the latter are naturally used in much higher dilutions. Either the cold method with casein as the emulsifier or the hot method with soap may be employed. The former is much to be preferred in our experience.

Preparation of Stock Emulsion

A stock emulsion of the oil is prepared of materials used at the following rates: calcium caseinate four ounces, water one gallon, oil two gallons. The mixing may be done in the tank of the orchard sprayer. Casein is thoroughly mixed with a small quantity of the water, and this is added to the remainder of the water in the tank. The oil is added, the mixture is agitated for a few minutes, and it is then pumped through the spray rods and is sprayed back upon itself in the tank until emulsification is complete. This usually requires about 30 minutes, depending on the quantity of materials to be emulsified.

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Georgia Credit Corporation a Success

By J. H. Reed

LAST year a group of Macon, Ga., business men, realizing the necessity for financing the peach growers and other farmers of the section, organized the Middle Georgia Agricultural Credit Corporation in the somewhat forlorn hope that the peach industry of the state might be thus placed more firmly upon its feet.

The 1924 peach season had proved disastrous. Owing to the rapid ripening of the fruit and consequent flooding of the larger markets of the country, peach growers in the Fort Valley and other peach producing sections were forced to sell their crop at cost or below cost, with the result that many of them were facing ruin. Many had been forced to assign their fruit to commission agencies in return for advances on fertilizers, baskets and so on. Many others could not sell for enough to pay the bills contracted at the stores.

After the returns were all in, leading growers, business men and bankers held a conference in Atlanta and a second one in Macon, in an effort to determine what course to take. Finally it was decided to organize an agricultural credit corporation and lend money through this to peach growers so that they might not be compelled to assign their crops to the merchant or the commission man in advance in order to secure funds with which to make the crop.

At that time it was unknown whether or not the intermediate credit bank could lend money on peaches, and a committee went to Washington and placed the matter before the Federal Farm Loan Board. After months of waiting, permission to organize the corporation was ob-

tained. A charter was secured from the state. An initial fund of \$50,000 was raised—not without some hard work, for the near-failure of the peach crop during the previous season had made many skeptical. Finally, on March 17, 1925, the new Middle Georgia Farm Loan Bank opened its doors—just in the nick of time to be of service to the peach growers of the section.

Today, after a year's operation, what have been the results?

During the past year, loans amounting to \$73,000 have been made to the farmers and peach growers of the Macon section, payable in full. And it is a significant fact that *all loans made have been paid in full!* The bank has not, to date, lost a penny on bad loans.

The original capitalization of \$50,000, which under the rules governing loans of the intermediate credit banks gave the bank a borrowing power of \$500,000, has been increased to \$100,000, and it is expected that more than \$1,000,000 will be loaned to growers during the coming year.

Debentures of the bank, by means of which it raises the money loaned to peach growers, and which are secured by the farmers' paper itself, have found such a ready acceptance that the bank has been able to pay an interest rate of four and one-half per cent on them.

The rate to peach growers on the loans made, ranging from six to nine months, has been only six and three-fourths per cent—a very low rate com-

pared to ordinary rates charged on farm loans.

And, largely as a result of the steady influence of the bank upon the industry, Georgia peach growers during 1925 marketed their crop for approximately \$10,000,000. The bank has, in short, played an important part in rehabilitating the industry, enabling the growers to retain control of their produce, and aiding them in expanding and improving their marketing system.

"There are probably three outstanding differences between the Middle Georgia Farm Bank and the ordinary commercial bank," says W. H. Watson, Secretary and Treasurer of the institution. "One is the comparatively longer period of time for which a loan may be granted. A second is the lower rate of interest obtained for the farmer. And the third is the manner in which the money for the loan is derived. The agricultural credit corporation is empowered to put debentures on the market which are sold in the investment centers of the country."

"What does the bank mean to the peach grower? In the first place, it gives many farmers a definite banking connection—a place where they can go each year to secure the financial assistance that they need. It makes it possible for them to pay cash for their fertilizers and all other supplies, as well as their labor, and keep on the farm the large profits that have been going to supply merchants. And it places the peach

growers where they will not have to assign their fruit over to a commission house in order to secure funds for financing their crops, thereby giving up all claim to their fruit and allowing these agencies to sell it as they see fit.

"The Middle Georgia Agricultural Credit Corporation is not an emergency institution, as was the first impression of the public. It is just as exacting in its demands upon the borrower as any other conservative lender of money insofar as sound security is concerned. But this gives stability to the institution, permits the investment of further capital in it, widens its lending power, and makes it still more useful to the peach growers whom it serves."

Provision has been made for an increase in the capital stock of the bank to \$250,000 eventually, giving it a lending power of \$2,500,000.

So the credit bank may be said to have just started upon its career. But while its usefulness has been limited during the first year because of the limited amount of capital subscribed, it has shown what it can do. It has proven itself a safe, sound and profitable investment for capital. And it proved itself to be the salvation of the peach growers who used it last season.

T. H. Halliburton is President of the bank; C. B. Clay, Vice-President; and W. H. Watson, Secretary and Treasurer. On the board of directors are some of the leading financiers of the state, including T. J. Stewart, C. B. Lewis, P. T. Anderson, T. Rad Turner, C. H. Neisler and Milton Heard. The offices are at 417 Broadway, Macon, Ga.

Summary of Fruit Crop Prospects

By C. E. Durst

ALTHOUGH spring frosts have caused damage in some sections, the prospects for fruit are excellent for the country as a whole. The reports from various states given below were obtained from leading authorities in the different fruit sections. This series of reports constitutes the third of its kind given this season. We shall not attempt to give further reports of this kind. During the remaining months of the season, we shall present in the place of this series of reports the summary of fruit crop conditions issued each month by the United States Department of Agriculture.

In the following summaries, the date of each report is given in parenthesis, and the name of the person furnishing the report is included at the close of each report.

Massachusetts (May 11).—Frosts have occurred on some of the lowlands during the past two weeks, but there seems to have been no injury to fruit blossoms, as they were not sufficiently advanced. Japanese plums are just coming into bloom. These will be followed closely by other plums, pears and peaches. All of these fruits promise well. Even the most tender varieties of peaches have come through with plenty of live buds for a full crop. Apple buds are now in the pink stage. Most growers have applied the "pre-pink" spray and are starting on the "pink" spray.

Plowing and cultivating of orchards is well under way, as is also the application of fertilizers. Strawberries and grapes have wintered exceptionally well. Raspberry canes suffered a little winter injury.—*F. C. Sears.*

New York (May 13).—Fruit buds are not as far advanced as usual at this time of the year. The chances are rapidly becoming smaller for frost injury. Practically all varieties of fruits have sufficient buds for a very good crop. Some of the insects which usually are difficult to control, such as aphids, are quite scarce this year. There has been plenty of opportunity to apply the delayed dormant spray; therefore, it should be possible to keep aphids and scab well under control. At the present time the prospects in New York are good for a large crop of first-class fruit.—*A. J. Heinicke.*

Pennsylvania (May 11).—Apples are now in full bloom in southern Pennsylvania but are not yet open in northern Pennsylvania. The weather has been favorable thus far and the percentage of bloom has been heavier than usual. Prospects are fine for a good crop of apples and peaches.—*S. W. Fletcher.*

New Jersey (May 13).—No injuries have occurred to peaches and apples during the blooming period. Conditions are therefore favorable for a good crop of these fruits this season. Bright weather has prevailed throughout the blooming period of apples, and bees have worked freely. It is too early, of course, to determine the percentage of pollination, but all factors have been favorable for a good setting of fruit.—*M. A. Blake.*

Maryland (May 10).—On the whole we have had little frost injury to apples and peaches. The shucks are now about off the peaches, and prospects are fine for a good crop in all parts of the state. The petals have fallen from practically all varieties of apples except in western Maryland; the blossoms have set well; and the prospects appear excellent for a good crop of all varieties of apples all over the state. However, a dependable estimate cannot be made until after the June drop.

The strawberry crop will also be good. Grapes and raspberries also appear fine at this time.—*E. C. Auchter.*

Virginia (May 12).—The month has passed thus far without a rain. The ground is dry and vegetation has suffered. Since the last report was made, we have had several days of low temperatures, but apparently there has

been no damage. Staymans, Delicious and Black Twigs were injured to some extent in places but probably not enough to affect the size of the crop. Yorks which bore heavily last year have a light bloom, but other varieties have a full bloom. The drought last summer and the dry spell we are now having may have an effect on the setting of fruit.

Peaches have been seriously damaged in some places, and some damage has occurred in all sections. The crop will probably be reduced 25 to 50 per cent below normal. Orchards in the lower elevations suffered a total loss, while the damage decreased with the increase in elevation.

Other stone fruits and pears are commercially unimportant in Virginia. Strawberry yields have been decreased by frosts and dry weather.—*F. A. Motz.*

North Carolina (May 12).—Reports from the western part of the state indicate that there will be about 80 per cent of a normal apple crop. The freeze on April 19 did considerable damage to the peach crop of the state. Accurate estimates are as yet impossible, but a preliminary survey indicates that we shall have about 50 to 60 per cent of a full crop of peaches.—*C. D. Matthews.*

Georgia (May 10).—The prospects are good for a peach crop of the best quality that Georgia has produced in years. There are few signs of curculio, and the setting of fruits on trees of most varieties is just heavy enough to insure good size. The freeze of March 14 thinned out the crop considerably, and no thinning has been necessary except in the case of Early Rose. Practically all growers of this variety have had to thin.

Peach growing weather has been excellent the past two or three weeks. The first shipments, which will be of the Mayflower variety, will move the last week in May. A few express shipments may be made during the third week of May.

The general feeling is that the peach crop this year will be almost as large as that of 1925. There will probably be between 11,000 and 13,000 cars shipped from the state this year. While the set of Elbertas is not heavy, large size fruit is in prospect. The total movement from Macon to Montezuma will probably be lighter than last year, but the crop should be heavier in most other sections.—*O. I. Snapp.*

Tennessee (May 10).—Fruit crop conditions have not changed materially since last month. Our prospects for fruits this season are still good. Fruits are beyond danger of spring frosts; therefore, we have every reason to believe that, barring accidents due to hail or severe storms, we shall produce good crops of fruit.—*J. A. McClintock.*

Arkansas (May 10).—Conditions are about the same as a month ago. Peaches will probably run somewhat below the last estimate in the Arkansas Valley, where there has been some damage from frost. The damage to grapes will possibly be somewhat lighter than reported a month ago, since in many instances sufficient wood was left to overcome frost injury and in others growth from lateral buds is making up for some of the damage.

Strawberries were injured little and will produce one of the largest crops in history. The Ozark territory promises to ship about 2500 to 2600 cars this year.—*J. R. Cooper.*

Kentucky (May 10).—Apple growers are optimistic at this time. Trees bloomed heavily throughout the state. The weather has been a little chilly for bees to work their best but crop prospects look promising.

Peach growers in practically all sections report a good set of fruit. On April 19-20 the temperature dropped to 24 degrees Fahrenheit, but the peaches

were still in the shucks and apparently came through in good shape.

Strawberries are blooming well and the prospects are excellent. There should be 100 cars more shipped from the state this year than last year.—*W. W. Magill.*

Missouri (May 11).—Fruit prospects have not materially changed since last month. We have experienced no weather which has been damaging to fruit. Since the apples have bloomed, however, the prospects are that the crop will be somewhat smaller than last year, although the lighter set may improve the size and quality of the fruit.

The commercial peach crop of southern Missouri was severely injured in early spring by frost and cold weather. Other fruits were not damaged, however, and are in excellent condition at this time.—*T. J. Talbert.*

Illinois (May 13).—Conditions in Illinois are about the same as a month ago. Peaches have set a good crop of fruit in places where sufficient buds survived the winter. The frosts occurring after the blooming period did some damage in restricted places, but they did not affect the crop to any appreciable extent. A number of growers are already turning their attention toward thinning. Notwithstanding the dry weather last summer, the trees have survived the winter in excellent condition.

Apples are now in excellent bloom in central Illinois. The set seems to be good in southern Illinois on young trees which did not overbear last year. In some orchards which bore heavily last year the set is comparatively light. There will be a good crop of Transparents, Winesap, Jonathan and Grimes are blooming well. Unless unfavorable conditions develop, Illinois will have a good crop of apples and peaches.—*M. J. Dorsey.*

Michigan (May 11).—Recent frosts have caused some injury to grapes and cherries—the amount is uncertain as yet. The grape crop was certainly not reduced over 20 per cent. The cherry crop may have been reduced one-third. Otherwise, fruit crop conditions are very good in Michigan. There is still some danger from late frosts, but vegetation is backward because of the late season, and it would take a very severe frost to injure apples and other late blooming fruits.—*V. R. Gardner.*

Ohio (May 12).—A heavy fruit crop is in prospect over most of Ohio this year. Cherries and plums are blooming heavily. Cherries suffered some damage from the low temperatures three weeks ago. In the Catawba Island district the peach bloom is fair, but there will be a good crop if the blossoms set well. Apples of all varieties are blooming full throughout northern Ohio. In some parts of southern Ohio, including Washington, Gallia and Lawrence counties, many orchards have a poor showing for a crop, due unquestionably to the drought last summer. However, a moderate crop will be harvested if conditions are favorable this summer. We have not yet passed the critical frost period, but it would require low temperatures to seriously curtail the fruit crop prospects.—*J. H. Gourley.*

Texas (May 12).—A good fruit crop is promised in our eastern commercial fruit sections. In other sections most of the peaches, plums, pears and apples were badly injured by freezing weather in March. Elberta peaches are probably two weeks later than normal because of cold weather and rains. There has been some recent hail damage to blackberries and other fruits.—*H. H. Schultz.*

Colorado (May 13).—I think we can now state the fruit crop prospects with considerable confidence. Apples will bear a normal crop. No injury has been done in the important growing

sections, and the orchards are in better condition than usual. The trees were well pruned during the winter. The water supply for irrigation will be abundant. Growers are in a hopeful attitude. The first spray application is now being made.

There will be a full crop of peaches in Colorado this year. Due to the light crop last year, the trees are heavily loaded, and are in an unusually good condition to produce a bumper crop. The weather has been ideal and there has been no damage from frost.

There will be a normal crop of pears, plums and sweet cherries. The sour cherry crop was somewhat injured by the zero weather in early March. This may cut down the yield of sour cherries in northern Colorado. On the whole, we have never had a better outlook for a large crop of all kinds of fruit.—*E. P. Sandsten.*

Idaho (May 12).—Present indications point to a full crop of apples in all sections. We have had the heaviest bloom on apples in years. The blossoms suffered no serious damage from cold weather. Spraying is about finished.

The freeze a few weeks ago reduced the cherry and prune crops on the low land where a rather heavy dropping of blossoms occurred. The prospects are fair for cherries and pears. Peaches and apricots set well.—*C. O. Vincent.*

Washington (May 13).—Our berry crop will be heavier than last year, but our cherry crop will be lighter. All other fruits promise to be about the same as last year.—*O. M. Morris.*

Oregon (May 13).—Our spring weather has been favorable for apples. There are prospects for a heavy crop. The fruit is very clean so far. Pears have set a good crop. There is some scab on Bartlett's. A heavy crop of large-sized pears is in prospect. The cherry crop is spotted, the Willamette Valley crop being light. Peaches have set heavily. Fine crops of strawberries are now being harvested. Bramble fruits give excellent prospects.—*W. S. Brown.*

California (May 13).—Prunes show a spotted condition, although a heavy crop is expected in some sections. The pear crop will be rather light in the early and mid-season sections but late sections, such as Lake and Eldorado counties, give promise of good crops of high quality. Apricots are spotted, the early shipping districts promising a fairly good crop, while the Santa Clara Valley promises only about 60 per cent of a crop. A rather light cherry crop has been considerably damaged by late rains. Almonds on the whole set satisfactorily, but shot-hole fungus has caused considerable damage in some places. Peaches give promise of a heavy crop except in southern California, where late leafing out has caused some damage in certain localities. Plums of all kinds give excellent promise. Gravenstein apples bloomed heavily, but the set has not been good, and there will probably be about 50 per cent of a crop.—*W. P. Tufts.*

California (May 10).—It is still too early to speak advisedly as to the condition of most fruit crops. However, reports reflecting conditions as of May 1 indicate that fair to good crops of peaches, pears, plums, almonds, apples and grapes are in prospect. The outlook for apricots, cherries and pears is not so encouraging. Forecasts of production will not generally be made until July. The acreage of fruit trees classed as bearing this season is approximately seven per cent greater than last year. There is an increase of eight per cent in the bearing acreage of all grapes compared with 1925.—*California Co-operative Crop Reporting Service.*

Son—Mother, may I go out to play?
Mother—What, with those holes in your pants!

Son—No, with the boys across the street.

for June, 1926

The Menace of the Seedling Peach Tree

By Monroe McCown
Indiana Horticultural Society

A COMMERCIAL peach-orchard without its quota of seedling trees is rarely found. In the nursery, a 100 per cent take of buds is never obtained, and a few of the seedlings are sure to get by the sorters and into shipments. The seedlings are then planted along with the other trees. Rarely does the orchardist remove these trees when the mistake is discovered. On the contrary, they are left in place, and thus they become a menace to the commercial crop.

The greatest loss to the commercial varieties, directly traceable to seedling trees, is that from brown rot. Due to the fact that these trees are never sprayed during a season when there is no commercial crop, and only partly sprayed when the entire orchard bears fruit, they are always carriers of brown rot. The disease is carried over from year to year in the mummied fruits. Furthermore, seedling varieties usually ripen earlier than the main commercial crop, and since few of the fruits are harvested, most of them rot and serve as a source of infection throughout the season.

Last season (1925) a large percentage of a crop of peaches in an Indiana orchard was lost due to brown rot. In this case Dr. M. W. Gardner, Pathologist at the Purdue University Agricultural Experiment Station, Lafayette, and Leslie Pierce, Pathologist at the United States Field Station, Vincennes, pronounced the badly infected seedling trees in the orchard the source of infection. The commercial crop had been well sprayed and dusted and consequently kept free from disease until near the end of the season. At that time growth cracks exposed the fruit to infection by the spores produced on the rotting peaches under the seedling trees. The grower estimated that 1500 bushels of peaches rotted. With fruit retailing at \$3 per bushel, the loss in this one orchard amounted to \$4500.

The seedling trees also harbor countless numbers of curculio, and since they receive a lax schedule of sprays, the cumulative effect of a thorough spray program carried out in the orchard is greatly decreased. The curculio takes its toll in wormy peaches and is also a factor in the spread of brown rot.

Why, then, do the growers leave these seedling trees? The chief reason, perhaps, is the fact that due to the greater hardness in bud of the seedling varieties, they very often bear fruit when the commercial crop is winter killed. It would be far more economical, however, to remove this menace and buy fruit when the crop is frozen. Prospects now point to a bumper crop of peaches in Indiana this season, and unless seedling trees are removed they will cause heavy losses to the growers.

Figures from 1925 Census

THE BUREAU of Census of the United States Department of Commerce has issued a preliminary summary of the 1925 census, subject to correction. Among other things these figures show that during the five-year period from 1920 to 1925 the number of farms in the United States decreased from 6,448,343 to 6,371,617, or 1.2 per cent. The number operated by owners decreased from 3,925,090 to 3,868,334, or 1.4 per cent. The number operated by managers decreased from 68,449 to 40,755, or 40.5 per cent. The number of tenants increased from 2,454,804 to 2,462,528, or 0.3 per cent. In 1920, 38.1 per cent of all farms were operated by tenants while in 1925, 38.6 per cent of the farms were operated by tenants.

The preliminary report also gives the figures for each state for both 1920 and 1925. Copies of this preliminary report may be obtained from the Department of Commerce, Washington, D. C.



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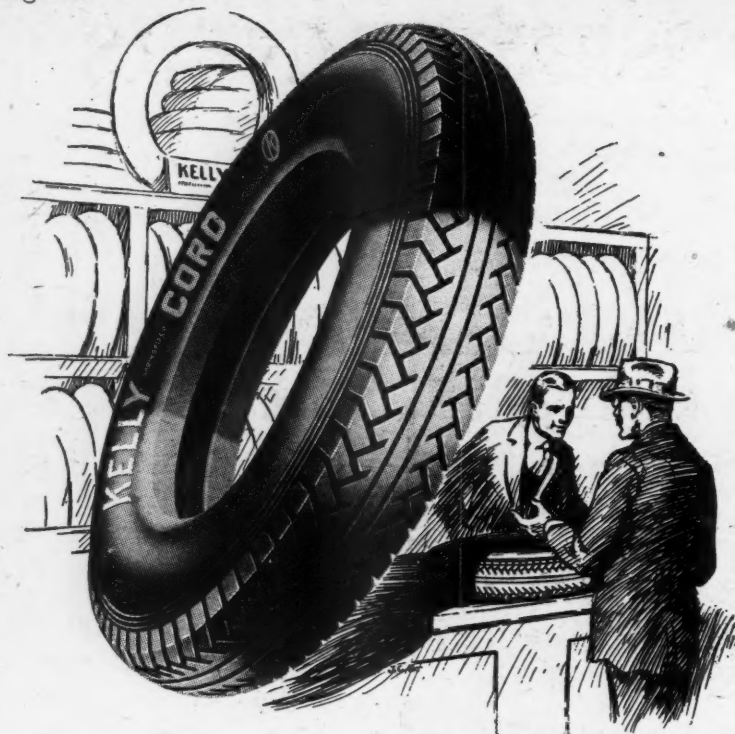
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Write H. F. INGLEHART, Prop.
Alexandria Bay, N. Y.

The Editor's Mail Box

New Jersey Formula for Dry Mix

DR. H. W. ANDERSON of the University of Illinois advises us that in his opinion the dry-mix preparation given in our last issue would damage foliage, and he recommends the use of the following formula which was developed by the New Jersey Agricultural Experiment Station. The formula for New Jersey dry-mix is as follows:

For 50 gallons of spray mixture use:
Commercial sulphur flour or very fine dusting sulphur 8 pounds
Hydrated lime of high grade, fresh, free from dirt and containing not less than 90 per cent calcium oxide 4 pounds
Casein-lime or calcium caseinate 8 ounces

Weigh out the required amounts of sulphur, hydrated lime and casein-lime. Sift the sulphur through a screen having 12 to 14 meshes to the inch to eliminate lumps. Mix the materials together dry, being careful to obtain a uniform mixture. The mixture thus obtained constitutes what is known as "New Jersey Dry-Mix." This dry-mix preparation should be used at the rate of 12½ pounds to each 50 gallons of water. Three methods of dilution are recommended, as follows:

Method 1.—Place the proper amount of material in a barrel or other receptacle that will hold water. Add water slowly, stirring the mixture until the grains of sulphur are wet and a thin solution is obtained that will pass readily through a strainer into the spray tank. Have the spraying tank at least one-half full of water when the straining is done. This method is particularly recommended for use with hand outfits or where it is inconvenient to have an agitator running when the tank is being filled.

Method 2.—Wash the proper amount of dry-mix preparation through a strainer into the spray tank while the agitator is running. This method can be used to advantage only where a strong flow of water from an overhead pipe or hose is available. Use a strainer having not more than 12 to 14 meshes to the inch.

Method 3.—Put the proper amount of dry-mix preparation directly in the spray tank after it is at least one-half full of water. Keep the agitator running while the dry material is being added. By means of a nozzle or spray gun drive a stream of the liquid from the spray tank directly into the surface of the water in the tank.

Dry-mix is easier to prepare and apply than self-boiled lime-sulphur. It can be mixed in advance of the spraying season and therefore will be ready for immediate use at any time. It can be applied without danger of injury to fruit or foliage. It is cheaper than any commercial material now on the market that is recommended for summer spraying of peaches. It spreads better than self-boiled or concentrated lime-sulphur. Such material as is not used immediately can be stored successfully in barrels, provided they are kept in a dry place. It is not advisable to carry material over from one season to another. (The above is an abbreviated form of the directions given in New Jersey Circular 177.)

Editor's Note: Growers are advised to use this formula in preference to the one given in the May issue.

Keeping Strawberries in Cold Storage

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: Please give me directions for keeping strawberries. I have heard a great deal about keeping the berries in cold storage but I do not know just how this is done. I would appreciate your advice.

ANSWER: Excellent directions for the keeping of strawberries by the cold storage method are contained

in Farmers' Bulletin 1028 and we are quoting these directions, which are as follows:

"First method.—When the preservation of the fresh fruit flavor is desirable, the following method may be used for packing small quantities of strawberries for use when they are not in season. Select sound, ripe berries; wash and hull. Use a tin of convenient size to which a tight cover can be fitted. To each 10 pounds of fruit use one cup of sugar; fill the cans with sugar and berries; put on the tops and cover their edges with adhesive tape such as is used in sealing packages; put in freezing cold storage and keep frozen until wanted. This product can be used for short-cakes, etc., by restaurants and hotels and for crushed fruit at soda fountains and by ice cream manufacturers.

"Second method.—The large manufacturers of the crushed fruits and sirups used by the soda fountain and ice cream trades prepare their product as it is needed at any time during the year from uncooked berries which are kept in barrels in cold storage preserved in the following manner: The berries are hulled and sorted and then washed. The washing is done by running the berries on a belt through a tank of water, then over another belt, where they are slowly turned and sprayed with water. The berries then drop into pans and are weighed. To each pound of berries, sugar is added varying from one-half to one pound. Usually, however, the proportion is half a pound of sugar to one pound of fruit. The proper proportion to use will depend upon the variety, the ripeness of the fruit, the moisture conditions, and the way in which the product is to be used. Heavy, water-tight barrels holding about 375 pounds of the mixture of berries and sugar are used. Before use they are carefully examined and coated on the inside with paraffin, which is applied while hot with a paint brush. New barrels may need special treatment to prevent the berries from absorbing a woody taste. The sugar and berries are put in alternate layers and mixed by machine or by hand. As soon as the barrels are headed they are shipped in refrigerator cars to a cold storage warehouse, where they are held at a temperature of 30 degrees Fahrenheit or lower. Several thousand barrels of strawberries are put up in this manner every year.

"After washing, the berries are sometimes dropped into a mixing tank, where the sugar and berries are thoroughly mixed by constant stirring. This tank is surrounded with ice water, in order to cool the fruit before it goes into the barrels.

"If equal weights of sugar and berries are used, the barrels of fruit may be stored at a temperature of 34 to 36 degrees Fahrenheit, but if the fruit is to be held for long periods, the flavor is best preserved at a lower temperature."

Renewing a Strawberry Patch

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: My strawberry bed is four years old this spring and is bearing its third crop. Will you kindly give me directions for handling the patch to get the best results?—J. R. W., Iowa.

ANSWER: I am afraid you have made a mistake. A strawberry bed usually does not do well after two crops are borne, and it is a good thing to plow up a patch at the end of the second bearing year and plant a new patch. If your bed has been cared for properly, and if you are particularly anxious to preserve it another year, you may be able to renew it at the close of the picking season and get fair results from it next season. However, if it has not been well treated, or if you have a younger patch coming on, I would suggest that you

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plow up the bed immediately after the present crop is borne. In renewing the bed, I would suggest that you first mow off the weeds and vines with a horse drawn mower or scythe. After the cuttings have become thoroughly dry, set fire to the patch and burn off the weeds and grass. It is well to do this on a fairly windy day and when the soil is somewhat moist following a rain, so that the least possible damage will be done to the crowns of the strawberry plants. Immediately following the burning, take a one-horse plow with a rolling coulter attached and plow on each side of the row, throwing the dirt away from the row. Plow only sufficiently deep to neatly turn over the grass, weeds and surplus strawberry plants. The old strawberry rows are often quite wide and it is advisable to narrow them down to five or six inches. Many growers leave the ridge of unplowed soil at the side of the old row so that the original crowns, which are practically worthless, are plowed out. After the plowing is completed, it is well to thin the plants in the rows to about six inches apart with a sharp hoe. After three or four days, or as soon as the weeds and grass in the plowed soil have died, the loose soil should be worked back to the rows with a cultivator. If a properly equipped plow is not at hand for narrowing down the rows, this work can be done with fair success by means of a cultivator. After the above work has been accomplished, the plants should receive thorough tillage during the remainder of the season so that as strong a growth as possible will be made. In view of the fact that your bed may be somewhat weak on account of its age, I would suggest that you apply about 100 pounds of nitrate of soda and 200 pounds of acid phosphate between the rows as soon as the patch is renewed and cultivate into the soil.

Help Us to Answer These Questions

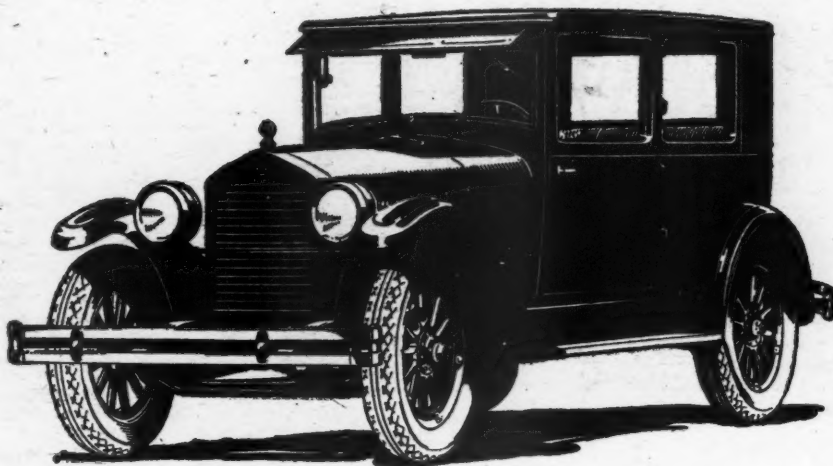
Editor, AMERICAN FRUIT GROWER MAGAZINE: I note with interest that you have been giving considerable attention to roadside marketing and to fruit packages. It occurs to me that you may be able to obtain information from your readers that would be valuable in the package standardization work we are doing. Could you secure from your readers their opinions on points which they consider important in regard to containers for roadside marketing use? I should particularly like to know what type of basket or other container they have found to be the best for roadside marketing. Should the basket be one with a handle, or has it been found possible to make sales successfully in baskets which have no handles? What sizes of baskets take best with the customers? This, of course, involves the question of what is the unit of sale at roadside markets. Are sales made in small quantities, or do customers take one-half bushel or one bushel at a time? Is it possible to secure for the small baskets of fruit a sufficient advance in price to cover the increased cost of using small packages? Some baskets for roadside marketing have been put out with gaily colored hoops, or with some of the staves or splints colored. Does this feature help to attract attention and increase the sale of the commodity?

In the article by Frame C. Brown in your issue of July, 1925, he speaks of using labels on baskets. It is not always easy to attach labels to baskets, and I should be much interested to know what sizes and types of labels are being used by roadside marketers. I might say that, so far as our information goes, the following baskets have been used in various places and at various times for roadside marketing: the round stave basket in the one-eighth, one-fourth and one-half bushel sizes; the hamper in the two, four, eight and 16-quart sizes; the Climax basket in the two, four and 12-quart sizes; the splint or market basket in a number of different sizes; and the till basket in the three and four-quart sizes. I should appreciate any information which your readers may be able to give me on this subject.—H. A. Spilman, Investigator in Package Standardization, United States Department of Agriculture.

EDITOR'S Note to Readers: We hope that every reader who has had experience in roadside marketing will write us fully on the questions raised by Dr. Spilman so that we can forward the information to him. Dr. Spilman and his associates are doing a great work in connection with package standardization. This work is supported through taxes paid

300,000 ESSEX OWNERS

They know its time proved value, its rare smoothness and performance, its sturdiness and economy



OF COURSE YOU WANT A "SIX" THAT IS TIME PROVED

Essex proved that everyone wants a "Six." But low price is not the only reason why 300,000 owners are praising it so highly, nor does price alone explain the reason for its continued sales leadership. Time proved qualities are what owners talk about. They speak of the little attention Essex requires and of how infrequent and small is the service cost.

They tell of economy in fuel, oil and tires. And they praise Essex smoothness in performance, its nimbleness and its power. They are the greatest Essex sales influence.

The Essex motor is built under Super-Six patents that give a performance and quality exclusive to this famous principle. Because of its vast production and the constant development of economical and precision methods of manufacturing its cost is little more than the lowest priced car on the market. Can you ignore such facts in the choice of your car?

NOW
LOWEST
PRICE
IN
HISTORY

The "A. Y. D."—At Your Door plan is hailed as an assured step in merchandising automobiles. All doubt is removed as to the price you pay for your car equipped and delivered at your door. It saves many dollars.

Convenient and Easy Purchase Terms

At Your Door With Nothing Else to Pay

Hudson-Essex dealers now quote "At Your Door" prices, including freight, tax and the following equipment:

Front and Rear Bumpers; Automatic Windshield Cleaner; Rear View Mirror; Transmission Lock (built-in); Radiator Shutters; Moto-Meter; Combination Stop and Tail Light

by all of us and the more we help Dr. Spilman, the greater service he can perform with the funds at his disposal. Get out your pencil and paper right now and write us fully while the subject is on your mind.

Commends Our Editorial

Editor, AMERICAN FRUIT GROWER MAGAZINE: Allow me to congratulate you on your editorial in the April issue on "Dividing the Fish." It gets down to fundamentals and sets forth first principles which govern us and from which there is no escape. It certainly portrays the economic situation as it exists today. It is a little classic and should be put out in leaflet form for distribution.

Productive labor, of which farmers constitute the largest proportion, produces a great fund of wealth annually. When it comes to dividing this wealth, many who put little into the fund take out a large share. A large number take out many times what they contribute in service of any kind. Union labor through organization is able to compel a fair division. Farmers, because of their lack of organ-

ization, must be content with what is left. As long as we have some persons getting more than their share of the national income, others must receive less than their proper share. As I see it, monopoly and special privileges are largely responsible for the unfair division of the national income that is being made. It is especially gratifying to find one agricultural journal whose editor has some grasp of economic principles. The average editor of farm journals seems to know as little about economics as I do about Einstein's theory of relativity.—R. W. Stiffey, Pennsylvania.

ANSWER: We are very glad to know that this editorial met with your approval. It is our object and desire to base our comments on fundamental principles, and we believe the principles outlined in the editorial mentioned are basic in their character.

MOST ornamental shrubs require very little pruning save that necessary for good vigor and appearance. The best way to maintain healthy and

natural conditions is to practice a method of gradual renewal in addition to the usual removal of weak, injured or unsightly parts. This is done by pruning back a few of the old stems each season and gradually cutting out one or two entirely every year or two, at the same time keeping the rest of the plant thinned out a little to let in light and to encourage new growth either from the base or from low down on the old stems. This treatment affords a natural method of keeping the plant within bounds and maintaining it at a certain size. Shrubs differ in their habits of growth but fundamentally their pruning is the same process. It should be more a process of thinning out than trimming back and it should be performed regularly every year with the realization that "a stitch in time saves time" and that it is easier to prevent an injury or mistake than it is to remedy it afterwards.—Horticulturist.

SPEED RO WAGON



Lowest-Cost Haulage for Fruit Growers

You want Speed Wagon sureness of performance—and Speed Wagon ability to outlast the years—and Speed Wagon fleetness to bring your markets nearer.

You want its carrying capacity, its generous loading space, its brute power, its gentle riding qualities and the several added features of the newly designed Speed Wagon.

Getting these elements entails no price penalty!

The Speed Wagon is the world's lowest priced 1½-ton commercial car.

It is many hundreds of dollars below the average of all trucks of from 1 to 1½ tons capacity.

Initial price, cost per ton, price per mile, cost per horse-power, lowness of depreciation—however you figure costs you will find Speed Wagon economy a provable, tangible feature.

4-cylinder chassis, \$1090 6-cylinder chassis, \$1240
Standard bodies to fit every farm load

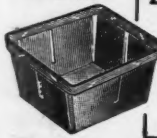
REO MOTOR CAR COMPANY ~ Lansing, Michigan

SHAW GARDEN TRACTOR

Woods—Grass—Leaves—
—sow them with 3 foot
Cutter Bar Attachment
on Shaw Garden Tractor.
Also plows, seeds, culti-
vates, runs belt machine-
ery. Easy to operate.
Special Offer
Write today for full de-
tails and Special Low Price.
Prompt shipment guaranteed.
SHAW MFG. CO., Dept. AF1, Galesburg, Kansas



The QUALITY BASKET



BERRY BASKETS

That secure highest prices for your fruit. Write for Price List illustrating and describing our line, and obtain your Berry Baskets and Crates at Winter Discounts.

The Berlin Fruit Box Co.
Berlin Heights, Ohio

When You Poison Use a Peerless —A real hand Dust Gun

Apply dust insecticide and fungicide with a Peerless Hand Dust Gun and get results. The load is divided front and rear—equally balanced. Easy to carry and easy to operate. Fan is ball bearing and the hub is packed in grease. The hopper holds seven pounds and the discharge can be regulated from nothing to twenty pounds per acre. Just the thing for plants, bushes and medium size trees.

Write for name of nearest dealer and mention this paper.

Peerless Dust Gun Co.
1600 E. 24th St. Cleveland, Ohio



With the Co-Ops.

AT THE close of 1925, 8256 farmers' co-operative associations had reported to the United States Department of Agriculture. The total membership was 2,386,061. Grain associations contained the largest number of members, totaling 490,000. Fruit and vegetable associations had a membership of 125,000. The average number of members for all associations reporting was 289 as compared with an average of 122 members for 1915. The increase in number of members is due largely to the development of centralized organizations.

The West North Central states contain the largest number of co-operative members, totaling about 700,000. Kentucky co-operatives reported a larger membership than the organizations of any other state. Many members of the large tobacco associations, however, are residents of neighboring states.

Since there are about 12,000 active co-operative associations in the United States, a conservative estimate of the total membership, based on that of the 8256 associations reporting, is about 2,700,000. The number of farmers participating in co-operative enterprises is somewhat less than the total number of members, since some farmers belong to more than one co-operative. The figures reported do not include the membership of centralized sales agencies, hence there is probably very little duplication, if any, in the above figures aside from the fact that some farmers are members of more than one co-operative.

THE AMERICAN Institute of Co-operation will hold its second annual session at the University of Minnesota June 21 to July 17. The meetings will be open to anyone upon payment of the tuition fee. General sessions will be held each morning, at which special lectures will be given by prominent authorities.

The first week will be devoted to problems of organization and market analysis, the second week to production programs for co-operatives, the third week to membership, educational and publicity problems, and the fourth week to financing and credit problems.

This meeting will prove an excellent school for all persons interested in co-operative marketing. Recognized authorities will conduct the course of instruction. This in itself will be a most valuable feature, but in addition, those who attend will have an opportunity to meet leaders in the co-operative movement from all over the country and to exchange viewpoints and information with them. A detailed catalog pertaining to the session may be obtained free of charge from the American Institute of Agriculture, 1731 Eye Street, N. W., Washington, D. C.

THE NEW Federal Income Tax Law adopted by the present Congress exempts co-operative associations from payment of income taxes to a larger extent than previous laws. Former laws were confusing in this regard, but the present law carries rather specific directions.

Farmer co-operative organizations operated for the purpose of marketing products on a cost basis or which purchase supplies for growers at actual cost are exempt from income taxation. Exemption will not be denied an association even though it has capital stock, provided the dividend rate does not exceed the legal

interest rate in the state or eight per cent per year and if substantially all of the stock is owned by producers who market products or purchase supplies through the association. Neither shall an accumulated reserve compel an association to pay an income tax. An association may market the products of non-members in an amount not to exceed the value of products marketed for members, and it may purchase equipment for non-members in an amount not to exceed the value of supplies purchased for members. Not over 15 per cent of the purchases may be made for persons who are neither members nor agricultural producers.

Co-operative associations which are requested to pay income taxes should secure copies of the new federal income statute and study the same to determine their rights in this matter.

THE FRUIT Growers' Supply Company, subsidiary of the California Fruit Growers' Exchange, conducted business to the value of \$100,429,989 since it was organized in 1907. A total of \$5,427,613 has been returned to growers as dividends on capital stock and patronage refunds.

Sales for 1925 included packing house equipment, orchard supplies, the sales from two lumber enterprises, box shooks, picking boxes, tissue wraps, labels, nails, cover crop seed, fumigation materials, fertilizers, equipment and supplies for spraying, frost prevention equipment, and buds from selected trees.

The company cut more than 82,000,000 feet of lumber at two sawmills. The box factory handled 19,700,000 feet of box lumber. A new planing mill was placed in operation. Sash, doors and siding were manufactured from the better grades of lumber. The lumbering operations resulted in a loss of \$466,772, due largely to the low prices at which box shooks was sold to members.

The lands, timber and equipment were inventoried at the close of 1925 at \$8,000,000. Outstanding capital stock amounted to \$5,337,750 and outstanding bonds to \$3,200,000. The cost of operation in 1925 was 1.93 per cent of sales as compared with 1.62 per cent in 1924.

THE DEPARTMENT of Agriculture has collected some valuable information with reference to causes for the failure of co-operative associations. A total of 11,920 reports were received for the study and 1117 of these were from associations which went out of business previous to December 31, 1925.

Reports from 1376 associations organized for collective buying indicate that 14 per cent discontinued business previous to 1926. The rate of failure for fruit and vegetable marketing associations is 13 per cent, for miscellaneous product organizations 12 per cent, dairy products 10 per cent, grain eight per cent, and livestock four per cent. The rate of failure for the United States as a whole is nine associations out of each 100, or nine per cent. The rate for the North Central states is seven per cent, the Middle Atlantic and Pacific states 11 per cent, the South Atlantic states four per cent, the eastern states 15 per cent, the West South Central states 16 per cent, New England states 18 per cent, and the mountain states 23 per cent. The lowest rate of failure was found in the states where the largest number of associations are in operation and where agricultural col-

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leges have given especial attention to co-operative marketing.

THE KEYSTONE Co-operative Grape Association of North East, Pa. handled products in 1925 to the value of \$669,510. The values of the different items of business were as follows:

Grapes	\$501,722
Small fruits	23,627
Baskets	44,465
Fertilizer	66,141
Spray material	9,482
Supplies	24,073

Total \$669,510

The gross margin was \$42,158, operating expenses were \$32,157 and net margins after including other income were \$12,561. The net margin is returned to members as a patronage refund after being held as working capital for two years. Refunds to the amount of over \$24,000 have been returned for the seasons of 1922 and 1923. The year of 1925 closed with \$24,942 in the surplus fund.

The association was formed in 1901. It is a non-stock corporation organized for buying supplies and marketing products for its 324 members. In 1922 the association shipped 817 cars of fruit, of which 787 consisted of grapes. In the five seasons in which the association has operated, its sales have amounted to over \$3,000,000. At the close of 1925, the fixed assets amounted to \$28,697, after allowing for depreciation. The growers' equity in the organization as represented by reserves and surplus was approximately \$30,000.

ON MAY 1 the California Fruit Growers' Exchange put into operation in Los Angeles a centralized distributing plant for loose lemons. The plant is being operated like a regular packing house. Fruit is being collected from local associations on a pro rata basis and is being trucked into Los Angeles, where it is graded and sized, but not wrapped, and sold loose in packing boxes.

The fruit is being offered to the jobber and peddling trade. This plan is an improvement over the one first used. Already the sales are appreciably above those of last season at this time. It is expected that 400 cars of lemons will be sold each year on the average through this house. By means of this method of marketing, unmerchantable lemons will be kept off of the eastern markets, and Los Angeles people will receive a better grade of fruit than formerly.

THE UNITED Fruit Companies of Nova Scotia, Ltd., of Kentville, Nova Scotia, is now 14 years old. Its membership consists of 49 local fruit and produce associations. It sells chiefly apples and potatoes for its members, and it purchases such supplies as spraying material, fertilizer, seeds, flour and feeds.

The association handled in 1924-25 over 400,000 barrels of apples. Shipments were made to many points in Europe, and large quantities were handled in the corporation's canning factory. Apple sales totaled a value of over \$1,500,000. In addition, large quantities of potatoes were sold and extensive purchases of supplies were made for its members. The total value of goods handled in 1924 was \$2,196,000. During the year 1925 the association had a paid-up capital of \$22,500. It is noteworthy that this co-operative has been able to do such a tremendous business with such a small paid-up capital stock.

THE EXCHANGE Orange Products Company and the Exchange Lemon Products Company, both subsidiaries of the California Fruit Growers' Exchange, have heretofore been operating independently. The two were recently joined, and E. T. Cassel was appointed General Manager of both. This step was taken to co-ordinate the work of the two plants, since many of the products are substantially alike.

The California Fruit Growers' Exchange also took action by which the

"SL"



A Long, Low, Fast International Truck —Ideal for Fruit and General Hauling!

THIS International model is attracting the attention of fruit growers and general farmers everywhere. In consequence many growers have added one or more of them to their equipment.

The 1½-ton chassis has a wheelbase of 150 inches, giving ample room for loads of fruit and produce without the necessity of high lifting. The top of the frame is only 24 inches from the road, which assures a low center of gravity and unusual safety at all speeds. The "SL" is built for economical hauling over long distances or short.

As shown in the picture above, the "SL" carries its capacity load well.

Space is provided for the display of your name or trade mark. This display, combined with the good appearance of the truck, gives your orchard, grove, or farm real advertising every time your truck travels the highways. "SL" is a truck any man can be proud to call his own.

Other popular International Truck models are the regular Speed Truck of 1-ton capacity; the short wheelbase "S D" of 1½-ton capacity for semi-trailer use; and a complete line of Heavy-Duty Trucks ranging from 1½-ton to 5-ton maximum capacities. Bodies for every hauling requirement. Ask for complete information.

INTERNATIONAL HARVESTER COMPANY

606 S. Michigan Ave. OF AMERICA
(Incorporated)

Chicago, Ill.

INTERNATIONAL HARVESTER TRUCKS COMPANY

sales division of the new organization will operate as the California Fruit Growers' Exchange, Products Department, thus giving it the benefit of exchange prestige with the trade. E. P. Johnson is acting as Sales Manager.

A campaign is being conducted to increase the membership of the products organization in order that additions may be made to the equipment.

THE CALIFORNIA Pear Growers' Association has been operating eight years. Heavy increases in pear production have occurred during that time. The bearing acreage increased from 17,000 acres in 1917 to 25,000 acres in 1925 and production increased from 65,000 tons to 175,000 tons. The officers estimate that the annual increase in yield in California will be about 12,000 tons.

During 1925 the organization spent \$50,000 in eastern advertising. Advertising was conducted in New York for the first time, and campaigns were also conducted in Boston, Philadel-

phia, Pittsburgh, Cleveland and Chicago.

Cannery sales in 1925 amounted to \$1,500,000. The canneries have the reputation of making prompt payment, and the association has never lost any money in connection with such sales.

The income of the association for 1925 was \$135,624 and expenses were \$88,291, including \$53,000 spent for advertising. The year closed with a surplus of \$192,023 in the treasury. Of this amount \$67,538 has recently been distributed to members.

The association has steadily increased its membership from 325 in 1918 at the time of organization to 1368 in 1924. The sales have increased from \$290,100 in 1918 to \$934,463 in 1924. The membership and amount of sales were not available for the year 1925 at the time this report was made.

"I see Rosenblatt had a terrible fire last night."

"Vell, he's a nice feller, he deserves it."

THE THIRTY-NINTH annual meeting of the Florida State Horticultural Society was held at Cocoa-Rockledge, Fla., on May 4 to 7. The meeting proved to be a success from every standpoint. A large number of subjects of a timely nature were covered in the program. The convention was addressed by leading horticultural authorities in Florida, as well as from a number of other states. The success of the society during the past year has been due in large part to the efficient work of the officers, consisting of L. B. Skinner, President; W. J. Krome, First Vice-President; S. F. Poole, Second Vice-President; William A. Sessoms, Third Vice-President; Bayard F. Floyd, Secretary; W. W. Yothers, Assistant Secretary; and L. D. Niles, Treasurer.

Two little girls were on their way home from Sunday School and were solemnly discussing the lesson.

"Do you believe there is a devil?" asked one.

"No," said the other, promptly, "It's like Santa Claus, it's your father."

PEAR PSYLLA

Stay Dead

When Dusted With

CYANOOGAS

REG. U.S. PAT. OFF.

S-Dusting Mixture

Experiments in New York State by scientific workers have shown that Cyanogas S-Dusting Mixture not only kills a larger percentage of psylla than other dusts, but that the psylla do not revive when treated with this material.

Cyanogas S-Dusting Mixture on exposure to air gives off hydrocyanic acid gas, the most powerful insecticide known to science. This gas reaches all parts of the tree, and kills the psylla. They cannot survive its fumes.

Cyanogas is easy to apply, economical and safe. It will not injure the foliage when applied according to directions.

Ask your dealer for Cyanogas S-Dusting Mixture, or send us fifteen dollars for a hundred pound drum, freight collect.

"It's the gas that kills them"

Send for leaflet 197 which gives full information

AMERICAN CYANAMID SALES COMPANY
INCORPORATED

511 FIFTH AVE. NEW YORK, N. Y.



(Patent Pending)

MORE PROFITS

From YOUR FRUIT

Hogue's E-Z-PAK
Loose Bottom Bushel

Packs through the open bottom



This exclusive facing feature makes packing easy. Inexperienced packers can equal the work of experts and pack as rapidly.

Full protection for your fruit, better carrying qualities and the superior display features of the E-Z-PAK will bring top prices for your fruit.

Ten Factories: Write for descriptive literature and the name of the nearest factory to you. It will pay to investigate.

The E-Z-PAK Corporation, Benton Harbor, Mich.

Apollo

Full weight,
Galvanized—

Roofing and Siding

Both farm and city property owners need to know the service and protection of reliable metal roofing.

APOLLO-KEYSTONE Galvanized Sheets give lasting wear and satisfaction for all forms of sheet metal work: Culverts, Tanks, Flumes, Roofing, Siding, Spouting, Gutters, etc. Sold by leading metal merchants. KEYSTONE COPPER STEEL is also unequalled for Roofing Tin Plates for residences, and public buildings—fireproof, durable, and economical. Look for the Keystone included in brands. Send for "Better Buildings" booklet, containing plans and information valuable to farmers and property owners.

AMERICAN SHEET AND TIN PLATE COMPANY, General Offices: Frick Building, Pittsburgh, Pa.



Markets and Marketing



THE LOUISIANA strawberry movement got into full swing during April this year. The crop was about three weeks behind normal as compared with last season. Up to April 10, 170 cars had rolled as against 430 to the same date last year. Other shipping sections met similar conditions, however, and it is expected that the financial loss on account of the late season will amount to practically nothing.

The ground remained wet late in the spring, but the plants showed a healthy green color and set heavily with fruit. Experts agreed that the crop was above the average this year.

About 18,500 acres of strawberries were grown in Louisiana this year. This acreage is distributed among about 5000 growers. It was predicted during the early part of the season that the production would amount to about 21,000,000 quarts as compared with 10,340,000 quarts from 10,340 acres last year.

The fruit grown around Hammond, which is the principal shipping center, is packed almost entirely in 24-pint crates, especially during the early part of the season. Selling agents claim they can secure better prices for the fruit when packed in this way. More than 90 per cent of the fruit is sold at auction to the highest bidder. Two auction companies operate in the territory.

The strawberries are loaded in express refrigerator cars, and the cars are given a primary billing to Mattoon, Ill. Buyers visit the loading stations during the day and take note of the quality of the berries as they are being loaded. In the evening the cars are put up for sale, one at a time, and they are sold by number. After the berries are bought, the buyers give directions for their diversion from Mattoon to the destination desired. Payment is made for the berries immediately, and growers as a rule receive their money on the following day. It is said that these auctions operate at very reasonable rates.

STEPS are being taken by the Fruitmen's Club of Florida to put into operation the plan for advertising Florida citrus fruits presented by C. C. Commander at the recent annual meeting and which was unanimously approved by the club. One requirement is that 75 per cent of the 1926-27 crop be signed up before the plan is put into operation.

The club has been incorporated and a special board of nine governors has been chosen. There are three representatives of the Florida Citrus Exchange, three of the large independent shippers and three of the small independent shippers.

The plan is to be financed by a fee of five cents a box, collected through the packing houses, which in turn will collect from the growers. Horticultural leaders in Florida now believe that the 1926-27 crop will be the largest in the history of the state and that judicious advertising will be absolutely necessary for the most effective disposal of the product.

The plan which was adopted by the club was submitted to a special committee which will have the organization work in charge. This committee is headed by L. B. Skinner, President of the Growers' and Shippers' League and of the Florida State Horticultural Society. He is not a member of the Fruitmen's Club, but he is one of the largest citrus growers of

the state. Mr. Skinner predicts that national advertising of the proper kind will next year bring Florida growers added returns many times in excess of the cost of the campaign.

THE ARKANSAS strawberry acreage this year amounted to about 12,685 acres. Northwest Arkansas, particularly Benton and Washington counties, had an increased acreage of about 25 per cent, the acreage increasing from 4000 last year to slightly over 5000 this year. The acreage in most of the remainder of the state decreased because of drought and a heavy demand for plants. Whole fields of plants were dug up in White county to supply the demand for plants. The White county acreage declined to about 3400 acres.

The Arkansas crop consists of about 3200 acres of Aromas and 7830 acres of Klondikes. About 2000 acres of Aromas are grown in Benton county and about 2470 acres of Klondikes in Washington county.

New acreage amounting to about 6835 acres was set out this year. The prospects are that with favorable weather the acreage in 1927 will be between 15,000 and 16,000 acres.

THE ECONOMIC status of apple growing in Pennsylvania, West Virginia and Virginia is to be studied by the Federal Bureau of Agricultural Economics and the experiment stations of the three states. C. R. Swinson will represent the bureau; S. W. Fletcher and W. P. Weaver, Pennsylvania; A. J. Dadisman, West Virginia; and F. J. Schneiderhan and J. J. Vernon, Virginia.

The object is to secure basic information in regard to rainfall, winter temperatures, killing frosts and blooming periods of varieties in relation to spring frosts. The data is to be secured for counties and for smaller local units if possible. A topographical map of the region is to be prepared. After the data are collected, field studies will be made. The orchards will be divided into three groups on the basis of elevation and exposure. It is hoped by this means that it will be possible to determine the border lines for profitable apple production in relation to weather and topography. It is planned to take the data in such ways that information of practical value can be worked out with reference to each of the important factors involved in apple growing. It is planned also to follow this first study with investigations of other problems of the apple industry, such as cost of production, farm management and marketing problems.

A NUMBER of growers of canning peaches in Stanislaus county, California, volunteered to keep cost-of-production records last season. They were guided by the county agent and the state farm demonstrator.

It was found when 60 records were summarized that to pay the total labor charges, taxes and incidental costs at the average selling price for 1925 an orchard would have to produce 9.1 tons per acre. The average yield of full-bearing orchards reported on was two tons above that. The average yield in the county was 3.85 tons less than enough to pay all expenses. One orchard, which made the highest tonnage reported, averaged 23.67 tons of No. 1 fruit, or 12.67 tons per acre more than necessary to break even. This orchard has produced more than

20 tons to the acre each year for the past four years. The successful low-cost practices followed on the farms obtaining the highest returns were carefully studied by 157 growers.

REPRESENTATIVES of the standardization and inspection service of several Middle Atlantic states met recently with officials of the Bureau of Agricultural Economics in Washington to discuss the United States grades for barreled apples with the object of making some minor modifications. It was proposed to introduce a grade to be known as "U. S. Commercial" to take care of early apples which meet the requirements of U. S. No. 1 grade except for color and maturity, and for late apples which meet the requirements except for color. Color specifications for a number of varieties were added to the list. The proposed changes will be submitted to the interested parties before final action is taken.

THERE were 1,314,000 barrels and 5,245,000 boxes of apples in storage April 1 this year, compared with 1,046,000 barrels and 3,412,000 boxes on April 1, 1925. There were in addition 675,000 bushel baskets of apples in storage compared with 314,000 a year ago.

THE FOLLOWING statement was recently made by the United States Department of Agriculture as a result of the figures collected in the 1925 census:

"Further plantings of citrus fruit should not be made without serious consideration, inasmuch as, barring freezes, a very material increase in production is likely. A general improvement in the apple industry may be expected. New plantings of commercial peach orchards are inadvisable except under the most favorable conditions of production and marketing. New planting of grapes is undesirable."

FRUIT growers should be interested in the fact that a large acreage of melons is in prospect this year. In Georgia alone the watermelon acreage will be increased by about 11,000 acres. Texas was scheduled some time ago to put out 34,000 acres this year. Cantaloup shipments have started earlier than usual this year, partly because of the early season in California, and also because earlier varieties than those grown formerly were planted. The acreage in California is about one-sixth larger than that of 1922 and is considerably larger than the acreage of 1925.

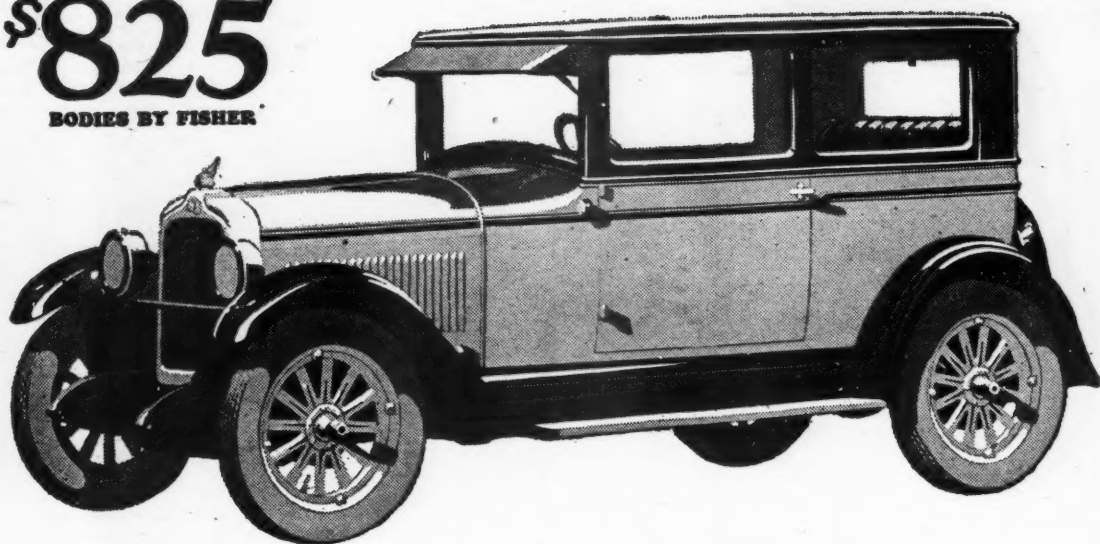
Monthly Market Review

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on May 8:

"The fruits and vegetables, as a group, have done better than most other lines of farm produce, being about the only class selling generally higher than a year ago and showing some resistance to this spring's downward tendency of prices. This fairly good market position is due mainly to the lateness of the season and somewhat to the light shipments from Florida. In general, the outlook for the produce market seems to be about as usual and fairly satisfactory for products which have not been planted on too large an acreage.

"A few of the fruits and vegetables sold higher in early May than in April, the usual supplies for the time of year having been delayed by weather conditions. Onions, cabbage, beans, tomatoes, apples and strawberries have been selling well. New potatoes, spinach and lettuce were lower because of liberal supply. California cantaloupes and cherries are in the market. Eastern apples have recovered in price slightly but western stock sells unchanged. The early outlook for the next fruit crop appears to be favorable and damage from late frost not generally serious.

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Berries Still Fairly High

"Prices of strawberries have been well sustained at a general level 20 to 50 per cent higher than last season. Shipments have been less than half the volume of last season because of lateness of several important shipping sections and lighter production in others. Output of the six second early states is forecasted as slightly less than last year. There were heavy increases in Arkansas and a corresponding decrease in Tennessee which formerly lead in berry shipments.

Some Apples Higher

"A slight gain in the position of eastern barreled apples was reflected in various advances of 25 and 50 cents a barrel. Most of the poorly keeping stock seems to be out of the way and there is a correspondingly good demand for choice apples. The slightly better tone of the market does not seem to have extended to boxed apples, which have been in very heavy supply and selling at a recent general shipping point range of \$1 to \$1.65 for the various market grades. Western New York Baldwins have been selling at \$3 to \$3.50 per barrel and a few brought \$3.75. There is still considerable poor stock selling lower. There is some fancy stock, like the Yellow Newtowns from Virginia, which brings \$8 to \$10 in northern markets, and southern Winesaps have been selling at \$6 to \$6.50. Midwestern apples,

mostly Ben Davis, range \$3.75 to \$4.25 per barrel in the cities. The movement of eastern and western apples has been heavy. The total exceeds 70,000 cars, or about one-fourth more than last season."

New U. S. Standards for Strawberries

U. S. NO. 1 shall consist of strawberries of one variety, with the cap (calyx) attached, which are firm, not overripe, underripe, or undeveloped; and which are free from mold or decay and from damage caused by dirt, moisture, foreign matter, disease, insects or mechanical or other means. Unless otherwise specified, the minimum size shall be not less than three-quarters of an inch in diameter.

In order to allow for variations other than size incident to proper grading and handling, not more than 10 per cent, by volume, of the strawberries in any lot may be below the requirements of this grade, but not to exceed one-half of this tolerance or five per cent, shall be allowed for defects causing serious damage, and not more than one-fifth of this amount, or one per cent, shall be allowed for decay.

In addition, not more than five per cent, by volume, of the strawberries in any lot, may be below the specified minimum size.

Unclassified, shall consist of straw-

berries which are not graded in conformity with the foregoing grade.

Definitions of Terms

As used in these grades:

"Overripe" means dead ripe, becoming soft, a condition unfit for shipment and necessitating immediate consumption.

"Underripe" means so immature that less than two-thirds of the surface of the berry is of a pink or red color.

"Undeveloped" means not having attained a normal shape and development owing to frost injury, lack of pollination, insect injury, or other causes. "Button" berries are the most common type of this condition.

"Damage" means any injury from the causes mentioned which materially affects the appearance, edible or shipping quality.

"Serious damage" means that the strawberries are soft or leaky; or have broken skins. Strawberries which are caked with dirt or which show no pink or red color shall be considered seriously damaged.

"Diameter" means the greatest dimension at right angles to a straight line running from the stem to the apex.

"Were you excited on your wedding day?"

"Excited? Say, I gave my bride \$10 and tried to kiss the preacher."

Essentials in Strawberry Culture

(Continued from page 7)

warm weather. Some of these leaves are supposed to be fully formed and only need warmth and a water supply to swell to full size. The flower

In Figure 6 is shown a fruit cluster of the perfect-flowered variety White Sugar, yet only two fruits developed. Not one of the other flowers set,

Growers should become familiar with this difference in varieties because of the effect of sterility on yield.

Perfect-flowered varieties vary in the percentage of flowers which set. Some do not set as well as White Sugar, while others set nearly all their flowers. The number of flowers of a variety that set varies greatly in the same field, and in different sections. Figure 8 shows a field of Aroma in Kentucky free from weeds, which produced nearly 50 crates more berries per acre than an adjacent field on the same farm in which the weeds had not been kept out. In the latter field were also many nubbins.

Valleau in Minnesota found 56 per cent of the flowers of the Dunlap sterile in 1916, while in 1924 at Glenn Dale, Md., it had only 32 per cent sterile. In 1924 at Salisbury, Md., the Klondike showed only 14 per cent of sterile flowers, Chesapeake only 16 per cent, and Joe 23 per cent, while Marshall produced 74 per cent sterile flowers and Big Wonder 89 per cent. It is evident why the Klondike, Chesapeake and Joe are three good varieties for that section while Marshall and Big Wonder are not.

To understand the sterility of the strawberry flowers, it is necessary to study the blossoming habit of the strawberry. Figure 9 shows a diagram of the strawberry flower cluster. The

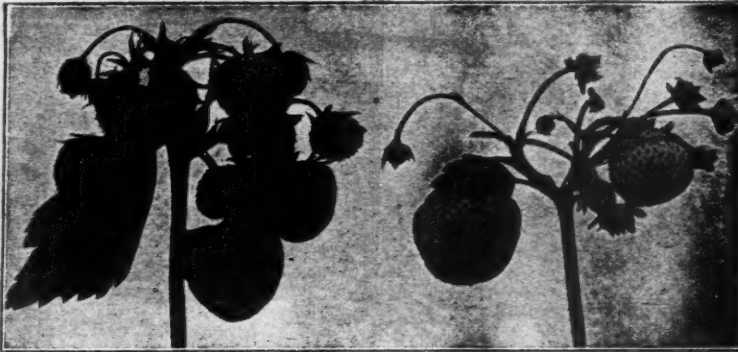


Figure 6 (Left).—A cluster of the Klondike strawberry, a perfect-flowered variety. In this cluster all flowers set fruit. Many perfect-flowered sorts, however, do not set more than half the flowers in a cluster. Figure 7 (Right).—A fruit cluster of the White Sugar strawberry, which sets few of its flowers. In this cluster only two fruits developed, all other flowers being sterile. Such varieties usually do not prove profitable

clusters are also supposed to be almost fully formed, and only need to swell to come into blossom. The roots also start growth very early, probably in many cases before the tops start. Varieties differ considerably in their spring growth, some starting earlier and growing much more rapidly than other sorts, especially at low temperature. This quick early growth is characteristic of the Klondike and Missionary varieties as well as of other sorts.

Flowers are of two general types according to varieties, perfect and pistillate, as shown in Figures 4 and 5. Because pistillate-flowered varieties must have perfect-flowered sorts planted in adjoining rows to furnish pollen, most varieties now grown are of the perfect-flowered type. Most strawberry growers know these differences in the types of flowers characteristic of the various sorts.

Few, however, know of the differences in the nature of the blossoms of the perfect-flowered sorts, yet it is one of the chief reasons why some varieties succeed and others fail. The fact that perfect-flowered sorts vary in this respect was discovered over 165 years ago by a French boy, and has been rediscovered many times since. About 75 years ago Nicholas Longworth, the great-grandfather of Speaker Longworth of the House of Representatives, rediscovered it, and just recently Dr. Valleau of the Minnesota Experiment Station made a careful study of the differences in the sex of the perfect-flowered types.

though they were not injured and were pollinated. These other flowers were completely sterile.

Figure 7 shows a fruit cluster of the



Figure 8.—Effective weed control favors the formation of strong buds and proper pollination of the flowers. This field of strawberries, located at Bowling Green, Ky., produced 50 crates more berries per acre than a similar field on the same farm in which weeds were not kept under control

Klondike, another perfect-flowered sort, in which every flower has set a fruit. Both sorts had perfect flowers, one produced a dozen berries, the other only two out of 13 flowers.

clusters are not always or generally of this exact form, but are based on the plan shown here. The primary flower is the first to blossom and is the largest, and develops into the largest berry. Of interest to us now, however, is the fact that it more commonly sets than the other smaller and later flowers. The Ettersburg 121 variety, which is so highly prized in Oregon, rarely sets more than one berry to a cluster in the sandy soils of Maryland, and it is usually the primary flower which sets, if any does.

Not only is the primary flower the most likely to set, but it is the largest of all the flowers in a cluster and produces the largest berry. Just as most of the primary flowers open at nearly the same time, the berries mature at about the same time, and the first berries picked are usually the largest. An apparent exception to this occurs in North Carolina. There, a second set of clusters forms on the Missionary variety in the spring at about the time the pickings from the first set, formed the previous fall, are becoming small. The berries produced from the primary flowers of this second set of clusters are often larger than those from the first set and are frequently considered the finest of the season.

It should also be noted that the primary flower contains more pistils than either of the secondary ones, the secondary more than the tertiary, the tertiary more than the quaternary, etc. The size of the berry depends on the

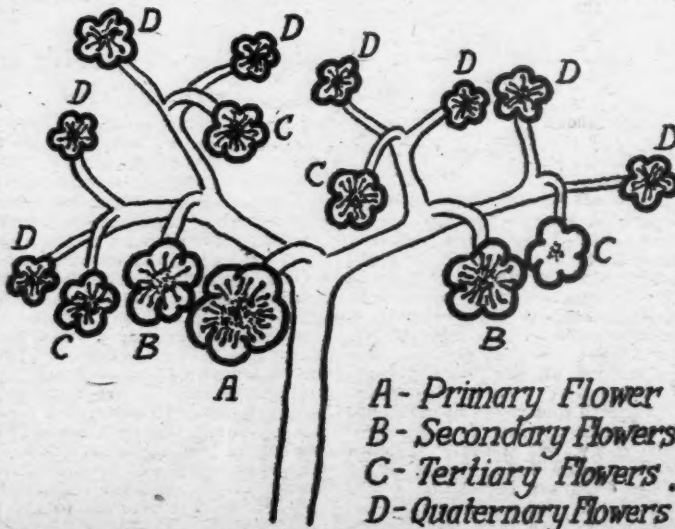


Figure 9.—Diagram of a strawberry flower stem. The primary flower is the largest one, opens first and makes the largest berry. The secondary flowers open next, are the next largest in size, and make medium-sized berries. The tertiary and quaternary flowers are later and smaller, and they form smaller berries. There is one primary flower, two secondary, four tertiary and eight quaternary ones. The primary flower is most likely to be fertile and the quaternary ones the least likely

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number of pistils in the flower and the number of seed that are produced. The more seeds there are on a berry the larger it is. If some of the pistils are not fertilized or are injured so that seeds do not develop, the berry will not develop on that side and becomes irregular. If but few of the seeds develop the berry is called a "nubbin."

To summarize, perfect-flowered varieties do not set all their blossoms but vary greatly in any section in the percentage setting. The primary flower is the most likely to set of any on a cluster, the secondary and later flowers being successively less and less likely to set. A variety to succeed in any section should set a high percentage of its flowers. Varieties should be selected which set and yield well and should then be well grown.

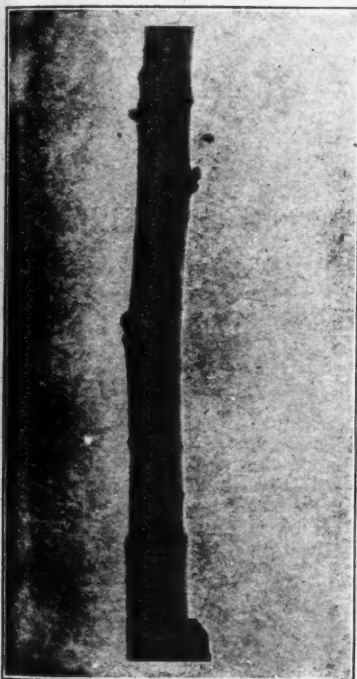
Fire Blight of Apples and Pears

(Continued from page 3)

may spread the disease by splattering the honey-like ooze to the leaves, twigs and branches. The exudations from the cankers are also diluted by rain and run down the twigs and branches, causing infection, particularly where abrasions in the bark occur.

Effect of Sprays

The various sprays which are applied to fruit trees are not a direct remedy or control for fire blight.



Fire blight canker on a pear twig. Note the shrunken condition of the bark and the distinct lines of demarcation between the dead and live bark.

They may be of great advantage, however, in that they control some insects which spread the disease and thus indirectly assist in its control. This is particularly true in the control of aphids. Some investigators have shown that there is a correlation between the abundance of aphids and the prevalence of fire blight. For example, varieties like Jonathan, which are susceptible to the disease, are generally infested worse by aphids than varieties like Winesap, which are fairly immune to the disease and which usually do not show as much injury from aphids. The control of other insects no doubt helps materially in reducing the amount of fire blight, because many of them may at times serve as carriers of the fire blight germs.

General Plan of Control

1. Cut out and burn the hold-over cankers.—In the control of fire blight the first and most important object

should be to rid the orchard of the source of the disease. Since the hold-over cankers found mainly on pear trees are the source, these are the first factors requiring attention. In the regular pruning work, the grower should be careful to remove and burn the blight cankers from all apple trees, as some varieties of apples, as well as all varieties of pear, may have hold-over cankers. In removing the blighted twigs and cankers, it is well to cut all infected twigs from six to eight inches below the cankered area in order to be sure of eliminating all the parts infected with the fire blight bacteria. The hold-over cankers on large limbs and the trunk should be treated likewise, removing the bark about six inches above and below and from two to four inches on the side, in order to rid the tree of all infected parts.

Such cuts and wounds should be disinfected with a 1-500 solution of equal parts of bichloride of mercury and cyanide of mercury. To prevent spreading the disease, the pruning implements should also be disinfected after each cut by washing or dipping them in the disinfectant. The disinfectant may be applied to the wounds and pruning tools by means of a sponge or several thicknesses of a soft cloth tied around a stick about 12 to 16 inches long. All cut surfaces should be painted after the disinfectant has dried, using ordinary house or barn paint, white lead and raw linseed oil.

If pruning is done during the growing season, the wounds should be disinfected and painted promptly. Cutting out blight and burning the dis-

(Concluded on page 29)



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Publications of Interest to Fruit Growers

THE FOLLOWING are some of the publications of interest to fruit growers that were received during the past month. Distribution of some of them may be limited to the state in which published, but we believe that in most cases growers can secure copies free of charge by addressing a request to the institute publishing them.

Peaches, by H. R. Wellman. Circular 1, Agricultural Extension Service, College of Agriculture, Berkeley, Calif.

Diseases of Grapes in Florida, by Arthur S. Rhoads. Bulletin 178, Agricultural Experiment Station, Gainesville, Fla.

Pecan Scab Control, by G. H. Blackmon. Press Bulletin 381, Agricultural Experiment Station, Gainesville, Fla.

Pecan Soils, by G. H. Blackmon. Press Bulletin 380, Agricultural Experiment Station, Gainesville, Fla.

Propagating Citrus Nursery Stock, by E. L. Lord. Press Bulletin 378, Agricultural Experiment Station, Gainesville, Fla.

Transplanting Pecan Trees, by G. H. Blackmon. Press Bulletin 379, Agricultural Experiment Station, Gainesville, Fla.

An Economic Study of the Massachusetts Apple Industry, by Hubert W. Yount and Lorian P. Jefferson. Bulletin 228, Agricultural Experiment Station, Amherst, Mass.

Eighty Winters in Michigan Orchards, by F. C. Bradford and H. A. Cardinell. Special Bulletin 149, Agricultural Experiment Station, East Lansing, Mich.

Dependable Fruits, by J. H. Gourley

and C. W. Ellenwood. Bulletin 394, Agricultural Experiment Station, Wooster, Ohio.

Apple Blotch, by John W. Roberts and Leslie Pierce. Farmers' Bulletin 1479, United States Department of Agriculture, Washington, D. C.

Preventing Undesirable Changes in Spray Mixtures

"WHEN acid lead-arsenate is mixed with lime-sulphur solution, a definite chemical change takes place whereby the weight of insoluble solid matter in the spray mixture is nearly doubled. This solid matter reduces the efficiency of the spray as a check on disease organisms and increases the danger of injury to the foliage." So states the New York Agricultural Experiment Station, Geneva, in Bulletin 521, which has recently been issued.

"Certain materials may be added to the spray mixture which prevent these changes without reducing the killing efficiency of the combined lead-arsenate and lime-sulphur spray. Case in point: preparations have been found quite satisfactory. Hydrated lime increases the solid residue in the mixture and is, therefore, not quite so good.

"Skimmed milk with added lime has a deterrent effect on the undesirable chemical reactions. Tobacco dust added to lead-arsenate and lime-sulphur sprays for combating certain insect pests also prevented undesirable reactions between the arsenate and sulphur compounds."

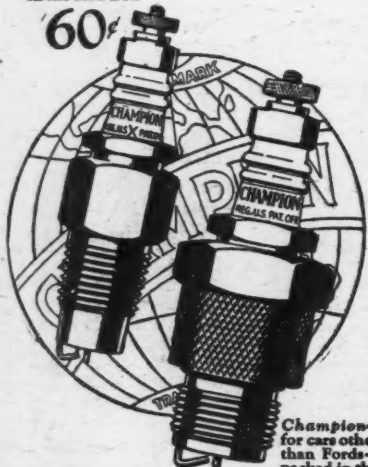


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Dewberries

By J. D. Luckett

New York Agricultural Experiment Station

DEWBERRIES are trailing blackberries. At least, that is the chief distinction made by fruit growers between these two fruits. There are other differences, such as certain flower and fruit characters, method of propagation, etc., which tend to separate dewberries from blackberries. As compared with blackberries, dewberries are usually larger, sprightlier, juicier and handsomer, and should have commended themselves to fruit growers long before they were finally admitted to the fruit plantation.

Although the dewberry is a native of America, it has only recently been domesticated, due largely to its method of growth, which has given the impression that it would be difficult to manage in the small fruit planting and that it is not winter hardy. Dewberries may be trained as easily as blackberries, however, and because of their mode of growth, they may be more easily protected in the winter. Except for the special training and the protection needed in the winter, the culture of the dewberry is practically the same as that given the blackberry.

Care of the Plants

In establishing the dewberry plantation, the plants should be set four by seven feet. The plants can be trained on trellises of two or three wires or tied to stakes, the latter being the more common practice. In either case, the chief objects to be attained are to regulate the amount of bearing wood, to keep the vines out of the way of the cultivator, and to keep the fruit off the ground. In northern regions the vines must be laid on the ground in the winter and covered with straw or some other material as a protection against cold.

Pruning is a simple operation consisting chiefly of shortening back young plants to four or five feet the first season to keep them from spreading too much, cutting out old canes at any time after fruiting, and heading in long shoots and laterals in the early summer. From four to six fruiting canes are allowed to the plant.

Dewberries thrive on a somewhat lighter soil than do blackberries, and some varieties require a light soil. In every case a mixture of varieties must be grown to secure cross pollination and insure a set of fruit.

The Loganberry

Probably the most famous of all the dewberries is the Loganberry of the Pacific Coast. Authorities differ as to whether Loganberry is a cross between a dewberry and a raspberry or whether it is a "sport" from a western dewberry. At any rate, it is a dewberry in appearance and manner of growth and is found extensively in both home and market gardens on the Pacific Coast. It is too tender to cold to grow in eastern plantings, but great quantities of the fruit, both fresh and preserved, are shipped to eastern markets. The berries are large, glossy red and have a peculiar raspberry flavor.

Next to the Loganberry, the best known of the dewberries is *Lucretia* because of its adaptability to a wide range of soils and climates. The variety is found from the coldest to the warmest range of dewberry culture. The fruits are large, jet black and of the highest quality, but the plants are inclined to suffer somewhat from disease.

Mayes Good for Middle West

Mayes is rated as the best of the dewberries for the Middle West but of little account in the East. The variety is widely grown in commercial plantings in Texas. It is supposed to be a hybrid between the wild dewberry and the common blackberry. Mayes is early, productive and vigorous, and is able to resist dry, hot weather, but is tender to cold.

Oregon Evergreen is a blackberry

with a trailing habit of growth, which has led to its being classed with the dewberries. This variety is noted for its canes, which sometimes attain a length of 40 or 50 feet. It is frequently trained over trellises and arbors. The fruits are glossy black and of rather poor quality, but the variety is extremely productive, yields of 40 pounds per plant having been recorded. The plants are rather tender to cold.

Premo, believed to be a seedling sport of *Lucretia*, is a popular variety in the South, particularly in North Carolina. The variety is a week to 10 days earlier than *Lucretia* but is not quite as productive. The fruit is an attractive black and of very good quality.

Other good varieties of dewberries include Bartel, Austin, Mahdi and Phenomenal.

Experiments on Fertilizing Peaches in Arkansas

PROF. J. R. COOPER, Head of the Department of Horticulture of the Arkansas Agricultural Experiment Station, recently made an interesting report on experiments conducted in fertilizing peaches.

In these experiments a pound of nitrate of soda increased the production of peaches 1.4 bushels per tree, or, where the trees were planted 110 to the acre, 154 bushels per acre. Two pounds of nitrate gave an additional increase of 0.7 of a bushel, or 77.27 bushels per acre as compared with the increase from one pound. At last year's prices, six and one-half cents' worth of nitrate of soda produced a gain of \$4.20½ when used as fertilizer for peach trees.

The report stated further that potassium and phosphorus increased the weed growth and that this produced an indirect benefit. However, if cover crops can be grown successfully without the use of potassium and phosphorus, these elements will not be needed for peaches in Arkansas.

Potash did not increase the color of peaches in these tests, as it is commonly believed to do. Neither did nitrogen directly diminish the color. However, when the peaches were shaded the color was diminished, and since nitrate of soda stimulates growth and increases the amount of shading, it indirectly lowers the color of the fruit on the average.

Contrary to general supposition, fertilizers do not increase hardness. Cold weather killed as high a percentage of buds on the fertilized blocks as on unfertilized ones.

Nitrogen caused some delay in ripening of the fruit, though this was not as great as was expected.

Practically no differences were found in the sizes of the fruit in the different plots. As a matter of fact, the check trees, which bore a light crop, produced the largest individual fruits, as a rule.

Prof. Cooper found that peaches may drop at any time between the bloom and harvest. The number of fruits remaining will be proportionate to the vigor of the trees and the supply of moisture. Nitrogen increases the set of fruit, and, in the event of dry weather, the size of such fruit is decreased.

Cultural conditions which favor growth increase the fruitfulness. Terminal growth ranging from three to 10 inches is more productive of fruit bud formation than a larger or smaller growth. A high percentage of the growth will fall between three and 10 inches when the shoots on the outer portions of the trees range from about 10 to 15 inches. This amount of growth on trees five to 10 years old may be secured by applying about two pounds of nitrate of soda per tree, but this should be accompanied by proper annual pruning and cultivation during the early part of the season. The ni-

trate should be applied at about blooming time. It makes little difference whether it is applied two or three weeks before or two or three weeks after this time. If the growth is too heavy, the amount of fertilizer and the amount of pruning should be reduced somewhat. Growth of bearing trees should never be allowed to become so heavy that it will be necessary to shorten the terminal growth by pruning. Ordinarily, pruning should be confined to thinning and just enough heading back of the branches to keep the trees within bounds.

Pick Up and Destroy Peach "Drops"

IN MOST orchards the small peaches that are now falling are heavily infested with curculio larvae, or "worms." This fact indicates that many adult curculios are present in middle Georgia peach orchards, notwithstanding the unusually cold winter which caused some to believe that the insect had been pretty well killed out. Growers are, therefore, advised to start immediately to pick up all small peaches that fall prematurely, in order to reduce the curculio population in the orchards before and during peach harvest. In some years the majority of the "worms" in the Georgia Belles and Elbertas at harvest are second generation "worms," the eggs of which were deposited by adults that resulted from "worms" in the peaches dropped in April and May. If these "drops" are picked up and destroyed, the number of the second brood of "worms" will be materially reduced, by preventing many "worms" of the first brood from reaching the adult stage. Furthermore, the number of adults that enter hibernation to attack the 1927 crop will also be materially reduced.

Experiments conducted by this laboratory show that three collections of dropped peaches will eliminate about 90 per cent of all curculio "worms" that fall during the season in peach "drops." The first collection should be made about a week after the small peaches begin to fall, and the other two at intervals of five or six days. A special effort should be made to collect first the smallest peaches that drop, as the smallest "drops" are the ones most likely to contain curculio "worms." All "drops" should be destroyed as soon as they are collected, by burying in a trench 18 to 24 inches below the surface of the soil. A layer of quicklime should be placed over the "drops" before filling in with soil. The "worms" can be destroyed by boiling the "drops," if this can be conveniently done. Burning "drops" has not proved very satisfactory.

On account of the extent of the curculio infestation in middle Georgia, it is necessary for peach growers to pick up and destroy peach "drops," in addition to the various spraying or dusting applications, if the insect is to be kept under satisfactory control. Growers are also advised to use the extension disk under the spread of the trees as frequently as possible between May 1 and July 1, to prevent curculio pupae in the soil from reaching the adult, or beetle, stage.

Detailed information on spraying, dusting and other methods of peach insect and disease control can be obtained by applying to the United States Government Laboratory, Fort Valley, Ga.—Peach Pest Laboratory, Fort Valley, Ga.

"Carter is the most absent-minded chap I ever met," remarked a thoughtful man to his friend.

"Why, this morning he thought he'd left his watch at home, and then took it out to see if he had time to go back and get it."

"That isn't as bad," said the second man reminiscently, "as the time when he left his office and put out a card saying he'd be back at three o'clock. Finding he'd forgotten something, he went back to his office, read the notice on the door, and sat down on the stairs to wait until three o'clock."

Fruit Growing in the Southeast

By O. F. E. Winberg

Small Fruits on the Gulf Coast

THE COAST counties of Alabama and of south Mississippi are admirably adapted to the growing of small fruits, such as strawberries, dewberries and grapes. However, nothing has been done in a commercial way except in the case of strawberries, which are grown to a small extent in south Mississippi.

The subject of small fruit has been on the program at every horticultural meeting for the past 10 years, but apparently the growers have not become sufficiently interested to give this branch of agriculture a trial.

Dewberries Give Promise

During the past spring a beginning was made in Baldwin county, Alabama, by planting 35 acres in Young dewberries. This particular berry has been grown successfully in a small way in Baldwin county for the last eight years. Therefore, insofar as the growing of the berries is concerned, the horticulturist is taking no chances, because it has been thoroughly demonstrated that both soil and climate are admirably adapted to dewberry culture in the section named.

The Young dewberry ripens during the month of May; consequently, it comes into the market at a time when there is not a heavy supply of berries.

The question of carrying quality of this berry remains to be determined. There will be sufficient berries from small old plantings for shipping to various markets this season to determine how this fruit will carry. If it does carry well under refrigeration, we believe that the possibilities of this most delicious berry are most promising indeed.

In addition to Young dewberries, other varieties are being tried out. The most promising at the present time seems to be the Van Fleet raspberry. However, sufficient tests have not been made to ascertain whether it would be safe to undertake the planting of this berry for commercial production.

Grape Culture Offers Opportunities

Grape culture has also been started in a small commercial way during the past season. Several varieties have been grown in this territory for many years, although grape growing has not

been attempted along commercial lines. Three varieties seem to be quite promising. These are Armalaga, Ellen Scott and Carmen. Which one will be the most desirable remains to be determined.

Strawberries Deserve Attention

Strawberry culture in south Alabama and south Mississippi, in our opinion, should not be neglected. It is a very important item in the general agricultural plan, but we do not believe that it is wise for anyone to undertake a large acreage, because of the labor problem. We do believe, however, that each farmer should have an acreage in proportion to the help he has at his command, say from one-half acre and upward. In fact, no one should undertake a greater acreage than he can give the most intensive care, in order that he may produce a superior article.

Spraying for Red Spider

GROWERS throughout the Satsuma orange section in west Florida, Alabama, Mississippi and southeast Louisiana, should watch their Satsuma orange trees very closely for red spider, which seems to be more abundant this year than usual.

The devitalizing effect on the trees resulting from red spider is very serious. The development of the trees will be retarded and considerable fruit will shed between now and July 1 if this insect is not combated.

Orange growers should spray thoroughly with lime-sulphur solution, using one gallon of lime-sulphur solution registering 32 degrees Baume to 70 gallons of water.

When red spider is in evidence, do not wait until next week or next month with spraying, but spray now.

Cultivation

CULTIVATE young Satsuma orange trees until September 1 at least twice a month, and more often if necessary.

It has never come under our observation that a good Satsuma orchard has been built without intensive cultivation.

Extension Authorities Emphasize Thinning of Fruit

THE HORTICULTURAL Extension Division of the University of Illinois is emphasizing the thinning of fruits in the state this year. Such thinning, according to the authorities, will make the fruits grow larger and give them a brighter finish. It will reduce the cost of harvesting and grading, while not materially reducing the total yields. Thinning will permit better coverage of the remaining fruits by spray materials and thus aid in the control of side worm injury and fungous infection.

In view of the large crop in prospect, thinning may also reduce much breakage of branches this year. Trees carrying a moderate crop of fruit will have a much better chance to set a good crop of fruit buds for the crop of 1927 than will trees which overbear this season. Overproduction of trees encourages the formation of biennial bearing habits while the production of moderate-sized crops tends to encourage annual production.

Time to Thin

The time to thin fruits in Illinois, according to the horticultural extension authorities, is immediately following the June drop. This drop usually occurs during the latter part of May in southern Illinois and about the second or third week in June in

northern Illinois. Apples are one to one and one-fourth inches in diameter at that time, while peaches, plums and apricots are one-half to three-fourths of an inch in diameter at the time they should be thinned.

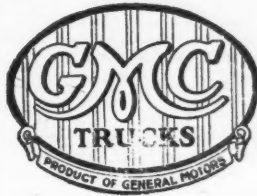
In the thinning process, growers should remove all injured fruits, leaving the largest and soundest ones. Apples should be thinned to five to eight inches apart. Varieties which run to small sizes should be thinned more heavily than varieties of large size.

Peaches and apricots should be thinned so that the remaining fruits are four to six inches apart. Plums should be three to four inches apart.

While doing the thinning, growers should keep their eyes on the trees and not on the ground. One is likely to reduce the amount of thinning if he watches the fruits on the ground.

ABOUT 60,000 acres of red cedar trees have been removed in Berkeley county, West Virginia, in connection with the cedar rust prevention campaign, according to A. A. Gold of the state department of agriculture. The work will be extended into Jefferson, Morgan and other counties as soon as the work in Berkeley county is well in hand.

Power and Speed that insure greater Work Capacity

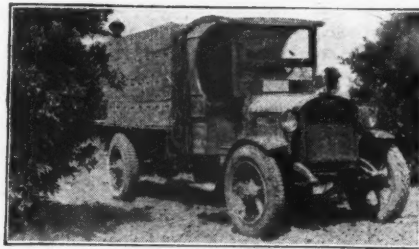


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Anaheim Citrus Assn., Anaheim, Calif. says: "The GMC Truck shown in the photo makes 10 trips a day, during the packing season (each trip averaging 4 miles) part of it through heavy pulling in the orchards. It has done this for several seasons, and we can't see that it has any less power. The GMCs are ready for work at all times and do their work well."

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ASK YOUR EXPERIMENT STATION

The Orchard Home Department

By Mary Lee Adams

Summer Days Out of Doors

SUMMER is the time to spend as many hours daily in the open air as possible. An outdoor living room where one may sew, read, serve picnic meals or just idle a while in close communion with nature, will add both health and pleasure to the season.

This airy sitting room may be in the garden under a sheltering tree or in a shady arbor. Here tables and seats should be substantial. Concrete, stone and iron are appropriate and decorative materials for this purpose. Wooden furniture, protected from the weather by waterproof paint, may be made very pretty.

The veranda, with attractive wicker porch furniture and grass mats, invites one to delightful hours of ease. The most tired or dispirited woman yields to the cheering influence of tea served here or on the lawn.

Anyone can make charming sets of raffia mats for the rustic table. In combinations of soft rose and gray, lavender and yellow, or other hues that accord with the china to be used, they will please the eye.

If you love birds, don't fail to add the interesting feature of a bird bath in full view. The little visitors do not demand a too strict privacy, nor are they exacting as to the shape, size or material of the bath provided for them. Only it must not be too deep. All birds seem to like a stone placed in the bath that they may stand on while drinking, and the water should be shallow enough to attract such small creatures as bluebirds, who are most conscientious and frequent bathers.

Buy the decorative cement baths with pedestal to match, if you can afford it. If not, provide shallow vessels of crockery or pans of tin. Even a large pottery saucer such as flower pots stand in, is eagerly sought by the birds. Where there is danger from prowling cats, be sure to place the bath out of reach of the little tame tigers, otherwise some jungle tragedy will disturb the serenity of your hours in the "best room," which is the outdoor living room.

Save the Babies and Mothers

IS YOURS a neighborhood to which several dear new babies come each year? That's good. But if you can add that they come to stay and that their young mothers stay with them, that's ever so much better.

Among the 2,500,000 mothers in the United States who go down into the valley of the shadow each year to bring back a new life with them, it is to be expected that some will never return. But up to this time many more mothers than need be, die on this perilous route, and there is a great unnecessary sacrifice of babies.

There are many contributing causes for this, but ignorance is chiefly at fault. No neighborhood can afford to neglect the means now provided by both state and federal aid for overcoming this needless tragedy of maternal and infant life.

Money is needed to dispense information, but some states have refused to accept the financial aid offered by the federal government for this purpose, on the supposition that it interferes with the individual right of each state to look after its own mothers and children.

"Quite the contrary is the case," says Miss Grace Abbott, widely beloved chief of the Children's Bureau, Washington, D. C. She urges a better understanding of the way in which federal and state aid co-operate in bringing valuable information and help to the 2,500,000 expectant mothers. "State plans," she says, "have originated in the states, and have been administered by the states, so that state initiative has been stimulated and state machinery strengthened."

"Each state plans its own program and decides upon the state agency,

usually the State Bureau of Child Hygiene, which shall direct the program. The work for mothers and babies is carried on as a part of the public health work of the state. The fact that the state has accepted the maternity and infancy act only means that it is possible to reach more mothers and babies because more money is available."

The Federal Maternity and Infancy Act provides \$5000 for each state accepting it. Later sums are to be matched by the states. A growing appreciation of the benefits of this co-operation is shown by the increased amounts accepted by the states each successive year. Though the work itself may be called almost in its infancy, there is already an encouraging reduction in infant mortality in such states as have consented to make use of federal aid and co-operation.

Women's clubs everywhere, and it seems to me particularly in rural districts where it is harder for mothers to secure all desirable information, should interest themselves in furthering the good work. It is indorsed by physicians, as shown by the fact that more letters have been distributed by their request through this agency than in any other way. In some areas, the automobile or truck, outfitted as a child health center, has been found of great service in initiating maternity and infancy programs.

Concrete a Boon on Farms

WHILE we are thinking of the ideal farm home, let us by no means overlook the hygienic and sanitary aspects of the modern home. There are modern aids to cleanliness and consequently to health, which are readily available in the country, and none of them is more easily handled by unprofessionals than concrete.

I am not one of those concrete enthusiasts who would obtrude it into the garden paths and almost into the dwelling itself. It has its limitations in several ways, particularly from an aesthetic point of view, but what could serve its use better than steps and back porch of concrete, so durable and so easily kept clean?

The same may be said of the poultry floors, where concrete will keep out rats and rodents and afford dry, comfortable quarters for the chickens, as well as a place which the orchard woman, in whose care the poultry is often placed, may visit without undue risk of ruining any decent clothes she may wear to her task among the fowls.

The concrete septic tank is the simplest, the surest and least objectionable of all methods of disposing of sewage on the farm. To its proper installment we may be thankful for the absence of typhoid from many a homestead which, without it, would run the imminent risk of contaminated water. This is one of the most important considerations in the whole matter of home making.

The septic tank is very simple in construction. Ten years ago one was installed at my orchard home by following the plain instructions of the manufacturers of the few metal parts which are required. It has never needed any care or attention and is entirely satisfactory.

Many other uses of concrete will suggest themselves to the masculine mind, but in the three mentioned the orchard woman is actively and individually interested.

Urgent

"Do I really need brushing off?" asked the passenger in the Pullman. "Does you?" exclaimed the porter with great emphasis. "Boss, Ah's broke."

Everyone Wants a Good Home

THOSE who see the women of today as simply pleasure loving creatures who feel little concern or affection for home, would do well to study the report of the National Farm Homes Conference that took place in Chicago in an early month of this year. It clearly indicated that the farm woman has "hitched her wagon to a star," and that this star, which brightens and blesses her life, is the farm home.

Since orchard homes appear in the front rank of farm homes in general, it is fair to assume that orchard women take a keen interest in them. Nothing less than an insistent demand for more ideal farm homes would have influenced the American Society of Agricultural Engineers to sponsor the Chicago meeting, of which the avowed purpose was to "make the farm home meet modern needs."

The importance accorded it is proved by the class of representatives who gathered there. The United States Department of Agriculture, the Farm Bureau Federation, the National Grange and Agricultural Editors' Association might have been expected to be present, as they were. But the whole question has taken on a wider significance. Not only such distinctively agricultural organizations as the above took part, but representatives came from such various allied interests as the General Federation of Women's Clubs, the United States Department of Commerce, Home Economics Association, Better Homes in America, Architects' Small House Service Bureau and American Public Health Association.

Women No Longer Resigned

A generation ago, such a concentration of effort on the improvement of the farm home would have been incredible. The possibility and propriety of beauty, comfort and convenience in the farm house was but the dream of a small proportion of farm wives. For the most part, they bravely but hopelessly accepted existing conditions, which, far from being ideal, were barely tolerable.

The farmer himself was prone to put all improvements on the farm ahead of any on the dwelling. The house in which the family lived and the wife worked had to wait upon the bettering of the stock, the stable, the soil, the tools, etc., until the farm wife, quite worn out with working and waiting, too often gave place to wife No. 2, without living to see a convenience installed, a beauty added or a comfort considered for her particular benefit.

At that time there was perhaps more excuse for this attitude on the part of the farmer than at present appears. But women on orchards and farms, like women in almost every corner of the world today, have ceased to be merely resigned. They are asking for such things as tend not only to make their toll less onerous, but which make the home more agreeable for husband, children and friends. It is now admitted that families will not stay on farms unless their homes are placed on an equality with the homes of any other class of people.

Career for Orchard Girls

Farm house planning has not been taken up as a specialty by architects, and yet what an attractive field it presents. Women are said to outlive men in the planning of convenient homes. They realize better the needs of the housewife. A speaker at the Chicago meeting went so far as to suggest that every architect be required to do at least a month's housework before receiving his diploma.

Not so bad as an idea, but what man is going to submit to this acid

test of fitness? It would be a splendid career for capable orchard girls to take up the practical study of architecture as applied particularly to farm homes. We predict they would make a success of it.

What the Women Want

W. D. Brinkloe, of Maryland, made a most interesting report which showed plainly what was in the minds of rural home owners. A number of house planning contests which he conducted for farm papers shows that 98 out of every 100 called for bathrooms. Shades of dear departed women who dipped water in pails from spring, brook and well, or rose to the luxury of a pump on the back porch, how your eyes must glisten as your daughters turn the faucets!

Most of the plans submitted to Mr. Brinkloe call for the bathroom on the first floor. A further indication of appreciation of the added fatigue and inconvenience of climbing stairs is shown in the large number of one-story bungalows. Six rooms are the preference here, with five and seven rooms ranking next in popularity.

Call of Beauty Heeded

The home owner's wishes are not covered by purely practical considerations. The heavy demand for hardwood floors indicates an openness to the combined appeal of beauty and convenience. Such floors are attractive in appearance and easy to keep clean.

Half of the home planners call for fireplaces in addition to heating plants, so that the good cheer and picturesque effect of open fires may not be lost. Breakfast nooks, sewing rooms and offices all point to the desire for neatness and orderliness embodied in the saying, "A place for everything and everything in its place." The modern outlook on hygiene is shown in many plans that provide sleeping porches.

Plea for the Front Door

It is not hard to guess why the kitchen is often placed so as to look out on the public road. The variety and interest thus afforded the one who does the cooking is sufficient explanation. I find it less easy to accept that it is better, as many seem to think, to have the main entrance at the rear of the dwelling. Certainly men with muddy boots, and children fresh from play or women from tending chickens, should have a convenient back door, which preferably does not open directly into the kitchen, to enter by. It ought to open onto a porch or space where there are mats or scrapers for muddy footwear. A box or container of some sort where rubber shoes may be kept, makes for clean floors all over the house.

It's very convenient in the two-story house to have the stairway lead up from the rear so that it shall not be necessary for every member of the household to pass by or through front rooms where callers may be seated; but none of this need interfere with an attractive front entrance.

It is here that the first indication of hospitality in the home is given. The fine quality of this distinctively rural virtue should be guarded in every way. Even the simplest front entrance which, if need be, may open directly into the living room, will preserve this better than any back door. Few persons feel complimented by being asked to enter the back door of the house.

Hints to Home Builders

"Planning the Farm Home," as discussed by Mr. Ekblaw, contained some excellent advice. He warned prospective home builders that costs run always from 10 to 20 per cent higher than estimated. He urged, therefore, that so all-important a step as home building should be thought out well in advance of the actual start on the dwelling.

In his opinion, common sense and

for June, 1926

economy both point to a small, well-built house rather than to a larger one of cheap construction. He believes far more permanent satisfaction is found in the first, and that the advisability of employing a good architect is therefore obvious.

To Motor or Not to Motor

Some of the representatives felt that the importance of efficient equipment was clouded by the general craving for escape from the monotony of home. They pointed out that there are more automobiles than telephones or bathtubs in the farm home. Are you in sympathy with this point of view? A bathroom seems to me of all things most desirable, but the family flivver has surely many practical uses, from carrying the laundry and bringing in the household supplies to taking the children to school and many more needed services. It always strikes me, also, as a symbol of joy and freedom to every member of the family.

Interest Is Widespread

It is heartening to the farm woman to feel that so many great organizations stand ready to further her wishes for an ideal home by giving every aid within their power. The Bureau of Home Economics, Washington, D. C., offers for free distribution many excellent bulletins com-

pared after practical investigation along the line of household efficiency.

M. C. Betts, Architect of the United States Department of Agriculture, says that his division has many plans, also for free distribution. He may be addressed at Washington, D. C.

Welcome news for the home builder comes from T. M. Sloan, United States Department of Commerce, Washington, D. C., who stated that a report has been made giving specifications for the small house and is now ready for those who request it. Plans are worked out for sharply reduced cost of plumbing, and the greater safety and efficiency of sewage disposal has been carefully considered.

The farm press offers generous co-operation, since they feel that with their combined circulation of over 10,000,000, their support is necessary in any wide-spread movement affecting farm life. They invite practical suggestions from their subscribers.

The Orchard Home Department of the AMERICAN FRUIT GROWER MAGAZINE will be very glad to receive from its readers any worth while suggestions on the improvement of orchard homes. These will be published from time to time in this department and should be of material benefit to those who are planning to build or remodel their homes.

Eradicating Honeysuckle in Apple Orchards

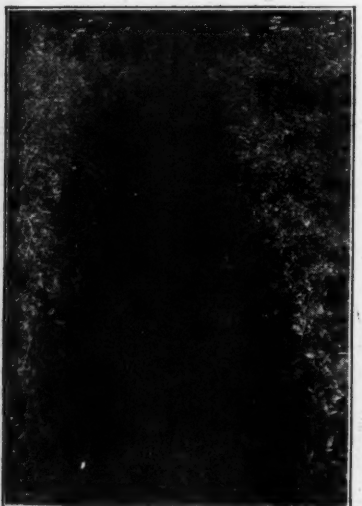
(Continued from page 9)

The stock emulsion, prepared as outlined above, contains 66 per cent of oil and is therefore diluted to 25 per cent by adding one and two-thirds gallons of water to each gallon of stock.

The quantities of materials to be used in preparing a 200-gallon tank of 25 per cent emulsion and their cost are as follows:

Calcium caseinate, 6 1/4 pounds at 16 cents	\$1.00
Lubricating oil, 50 gallons at 15 cents	7.50
Total	\$8.50

Twenty-five gallons of water are used in making the stock emulsion and



A path made through a solid bed of honeysuckle by one application of a 33 per cent emulsion of a miscible oil. Photographed July 25, 11 days after spraying

125 gallons are added to the stock for the required dilution. The 200 gallons of emulsion will spray about one acre (50 trees) of infested orchard for the first application. About one-half this amount is needed for each of the two subsequent applications, so that an estimate of the cost of materials for thorough eradication would be \$17 per acre.

These amounts are sufficient for the most severely infested orchards, and considerably less will be required for average conditions.

Effect of Oil Is Rapid

The effect of the oil is rapid and all above-ground parts will be dead af-

ter a few days. The roots, however, are not reached by the oil, since only a light application is made and this is absorbed in the surface layer of soil. It is necessary to starve the roots by destroying new foliage growth at regular intervals, but this is readily accomplished.

The first spray should be applied under Virginia conditions about May 15. Best results are obtained on warm, sunny days. This application should be thorough, about four gallons of emulsion for each infested tree area being required. No spray should reach the tree trunk, as it is very likely to cause injury. A spray gun is a useful tool for this job, as it is short and convenient to handle. Begin spraying near the tree trunk and work outward, to avoid walking through the sprayed vines.

A second spraying will usually be required in mid-summer, about July 15. New shoots will have grown about four or five inches by this time, and these are readily killed with a light application. The second application should effectively prevent all further growth for the year, but an occasional new shoot may appear the following spring. These should be sprayed as in the previous year, on about May 15. The third application should complete the death and eradication of honeysuckle, provided the applications have been thorough and properly timed.

In places other than apple orchards, where the vines can be burned without injury to surrounding vegetation or structures, the second application may be dispensed with and the sprayed patch may be burned in mid-summer. The fire will destroy the new shoots together with the old vines. This method is, of course, not practicable in orchards as fruit trees are easily damaged by heat.

Roots Not Damaged

There seems to be no likelihood of injury to the roots of apple trees from the oil applications, and none has been experienced. The quantities employed are too small to be absorbed in toxic quantities, and the oil appears to be decomposed rapidly in the surface layers of soil. The possibility of injury from heavy overdoses should not be overlooked, however, and the caution in regard to spraying the trunks of the trees should be complied with.

The Virginia growers who are using oil emulsion in the battle with honeysuckle are finding it an effective weapon. The cost of the method is not excessive as compared with the benefits obtained.



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The Mount Gilead Process

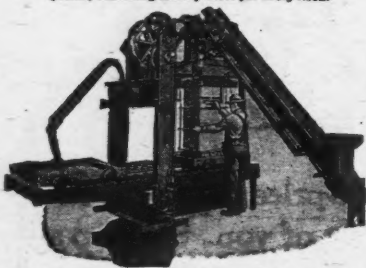
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What About Summer Pruning?

(Continued from page 5)

regarding summer pruning unless it would be to let it alone. This is not a proper rule, however, as there are frequent cases in which there is a real need for growing-season pruning. These are special cases and do not come under a general rule. At certain stages in the care of an orchard, fruiting can be better established or maintained by the proper use of summer pruning. For instance, if the tree has a densely shaded top, early season thinning out of the upper part of the top tends to hasten instead of delay fruiting. Also, pinching of strongly growing shoots sometimes induces blossom bud formation if increased growth in diameter is made after the tipping is done. The trouble with this operation is that there is no certainty of how much growth will be made after tipping. It has already been noted that giving a dormant season type of cutting in the summer time after nearly all the growth of the season is completed, fails to give the growth type which is associated with blossoming. If the need of the tree seems clear, and the type of response can be somewhat clearly forecasted, try such summer pruning as fits the case. If it is to be used merely as an experiment, leave it alone, or at least be prepared to be satisfied with an experimenter's results.

Apple Sports

(Continued from page 5)

stations and colleges are this season being flooded with letters in regard to brightly colored sports of this or that variety. Without question in most of the cases reported the red color has been induced by climate, soil, culture or other conditions, and the bright color will not be transmitted by buds or scions. No one knows what induces plants to sport, but probably it is not the climate, soil or culture; more likely it is hybridity. It is known, however, that some species and some varieties sport comparatively freely; others rarely or never sport.

Variations in fruits or other economic plants are always interesting, and if they prove to be transmissible, they may be valuable. Growers of crops should be on the lookout for them. It is well to remember, however, that their value can be told only by propagating from the sporting branch of the plant. If the variation continues to come true, it is a "sport" in the sense in which this word is used by horticulturists. If the offspring is of the normal type, the variation is but a deviation brought about by environment. For emphasis, it may be said again that the vast majority of the differences found in every variety are of the latter class, and improved fruits cannot be made out of these variations by selection. Persons with exuberant imaginations who see heritable characters in all of the multitudinous variations in an orchard, must hold their enthusiasm in hand until, through propagation, the variation proves to "come true."

How to Sterilize Drinking Water

ONE OF the best materials for sterilizing drinking water is pure chloride of lime. For a gallon of water, use as much as can be heaped on a five-cent piece. Use this as a stock solution and carry it on outings or trips.

Two teaspoonfuls of the stock solution mixed with an ordinary glass of water will make the water safe for drinking and, at the same time will not interfere with the color or taste of the water.

Sweet Young Thing.—Why do they always call a ship "she?"
Aged Salt.—Why—beggin' your parding, ma'am—that's because the riggin' costs so much.

CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



Attractive Porch Boxes

PORCH boxes full of luxurious, gay-colored blooms will make the plainest little home inviting and attractive and they will add their bit to the already beautiful home. They will be a source of constant joy to the owner and afford real pleasure to every passerby. No homemaker who has once possessed a beautiful porch or window box will ever willingly be without one in the future.

We use the term "porch box" in this article to include the whole series of related flower containers—urns, hanging baskets, window boxes and true porch boxes. Urns are most often seen on the lawn or walk in front of the more formal homes. Hanging baskets seem to belong with the small bungalow type of house. Porch and window boxes, painted to match the house or in contrasting colors, are used on almost every type of house. They are equally effective below large single pane windows or groups of smaller casement windows. They are used on upstairs balconies or on ground-floor porches, and, in fact, almost anywhere the owner may desire to put them. Every housewife should have for her especial pleasure a flower box at her kitchen window.

Essentials in Developing Successful Porch Boxes

Several things are essential in developing successful porch boxes—rich soil, plenty of water and sunshine, and healthy plants with a continuous blooming season. The location of the box with reference to the sun is important. A sunny location is best, as plants grown in the shade have a tendency to bear more leaves than flowers.

Porch boxes should be so planned that they will be attractive throughout the entire season, and in the milder climates they should be beautiful in summer and winter. Tulips or hyacinths may be planted in the fall for early spring blooming. These plants will have died down and may be taken up by the time you are ready to plant your geraniums and other summer flowering plants. I tried hyacinths in my big porch box last winter and was rewarded with lovely, fragrant blooms over a period of six weeks this spring. I have several plants of variegated myrtle in my box, and these live and stay green the year around. They bear pretty star-shaped blue flowers early in the season. Myrtle is a trailing plant, its long sprays reaching a length of six feet or more.

Trailing plants are necessary to secure good effects with flower boxes. Those most commonly used are myrtle, Wandering Jew, Creeping Charlie, trailing nasturtiums and the trailing, blue-flowered Lobelia. I am experimenting with Scarlet Runner beans in my porch and window boxes this year. I have "everything to gain and nothing to lose," by the experiment. If I don't like them in the box, I can easily pull them out. But they should be very effective. Nasturtiums are good early bloomers, but they turn yellow and get dry looking in the latter part of the summer, when they should be replaced by other plants. Wandering Jew grows slowly at first, while Lobelia does not trail far. Creeping Charlie and myrtle are thrifty growers.

Geraniums Old Standby

No other flowers can take the place of geraniums for the porch box. They produce a profusion of gay-colored

flower clusters throughout the season, from "frost to frost." They grow in many colors, including red, cerise, rose, pink, salmon pink and white. Choose the colors that will look best with your house as a background. My neighbor's house is yellow and her boxes, with red geraniums predominating, are a delight to the eye of the beholder. My own house is gray, and I use cerise geraniums with blue Lobelia and a sprinkling of other colors.

Petunias are another successful porch box flower. They can be had in the common varieties and colors, or in the big, velvety ruffled types. The plain, common petunias flower most prolifically, but the blooms do not compare with the others in size or richness of color. I chose the ruffled ones in a deep maroon color for my own boxes last year.

Now we shall add a few plants of heliotrope for its fragrance and tiny lavender flowers, Dusty Miller for its silvery gray foliage, lantana for its flame colored flowers, and nasturtiums, to be replaced by French marigolds when they have passed their prime. Sweet alyssum (white flowered) is often used, as is the pretty verbena. Any other plants that happen to strike the owner's fancy may be added to the collection. We should not try to follow any set rules, but should work out our own ideas—that's where the fun comes in.

Set Plants Closely

The plants should be set fairly close together in an orderly and balanced arrangement as to height and color. The box should be well filled so it will not look vacant and skimpy later. Be sure the box is gay-colored, but beware of too many colors in one small box during any one season! A few rich, bright colors that harmonize well, with perhaps a few others to snap up the color scheme, will give a better effect than a conglomeration of many colors all in the same box.

Give Careful Attention to the Soil

We have talked about flowers first because they are most interesting, but in actual practice we have to prepare the soil first.

Soil for porch and window boxes must be very rich, as the plants are close together and it therefore takes a richer soil to support them. Nothing is so unattractive as stunted plants. After the box has been put in place, fill half full with ordinary garden soil, then add a large bucket of sand (for a large box) and fill to within two inches of the top of the box with a good fertilizer. Mix and pulverize the soil thoroughly. Now you are ready for the plants.

Need Frequent Watering

The need of sufficient water at all times was mentioned at the beginning of this article. This is most important, as the boxes are up in the air and therefore dry out more readily. Except in rainy weather, it will be necessary to water them once every day, and in hot weather several times each day. If, as the plants grow, you find they are not quite as thrifty as they might be, a poor soil is indicated in most cases. You can remedy this condition by putting a quantity of well-rotted cow manure in a pail, covering with water and letting it stand over night. In the morning drain off the liquid and use this to water the plants in the box. Do this.

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say once or twice a week, and note the difference in the appearance of your box in a few days.

Porch boxes bring us and our friends real pleasure. This world is not over-supplied with genuine joys and pleasures. Therefore we should at least contribute one truly beautiful porch box for the world's pleasure (and our own) each year.

The Value of Fruits and Vegetables

DO YOU like fruits and vegetables? If not, it might pay you to start cultivating a "taste" for them, as they not only add a variety of delightful flavors to your diet, but they are healthful as well. Most of us just naturally crave them, however.

For one thing they contain a large amount of sugar and starch in a form which is in most cases easily digested and utilized by the body. Most of the vitamins are found in the different fruits and vegetables. Leafy vegetables are especially valuable sources of vitamins and minerals. All fruits contain more or less of fruit acids, which burn in the body to give a basic

Recipes for Strawberry Desserts

OTHER dessert has so captured the imagination of the American people as has strawberry shortcake. Children dream of being lost on shortcake islands, and many grown-ups' dreams aren't much less fantastic! Commercial canners say they cannot sell a shipment of canned goods unless strawberries are included. Home canners plan always to provide a supply of canned strawberries for winter. But whether canned or eaten fresh, the fact remains that strawberries are one of the most popular fruits. Here are a few tested recipes:

Strawberry Shortcake

2 c. flour 2 t. sugar
4 t. baking powder 1/4 c. milk
1/2 t. salt 1/4 c. butter

Mix dry ingredients, sift twice, work in butter with tips of fingers and add milk gradually. Toss on floured board, divide in two parts, pat and roll out. Bake 12 minutes in round cake tins. Split layers when slightly cool, and spread with butter. Sweeten berries to taste, place on back of range to warm, crush slightly, and put between buttered layers and on top of shortcake. Serve with thick cream or whipped cream.

Strawberry Ice

1 qt. strawberries 1 c. water
1 c. sugar Lemon juice

Hull and wash strawberries. Sprinkle with sugar, cover and let stand two hours. Mash, squeeze through cheesecloth, add water and lemon juice to taste, then freeze. Strawberry ice prepared in this way retains the natural color and flavor of the fruit.

Strawberry-Banana Tart

Sift together 1 c. pastry flour, 3 t. baking powder, 1/4 c. sugar and 1/2 t. salt. With tips of fingers work in 3 T. shortening, add one egg beaten light, and enough milk to make a dough. Turn onto a floured board, pat and bake on pie plate. When baked it should be a pale amber shade. Let cool, pile strawberries and slices of banana on top and dust with confectioners' sugar. Serve with cream.

Strawberry Ice Cream—I

3 pts. thin cream 2 c. sugar
2 boxes berries Few grains salt

Wash and hull berries, sprinkle with sugar, cover and let stand two hours. Mash and squeeze through cheesecloth, then add a few grains salt. Freeze cream to the consistency of a mush, add fruit juice gradually, and finish freezing. Rich milk may be substituted for cream.

Strawberry Ice Cream—II

1 qt. berries 1 1/2 c. milk
1 c. sugar Whites of 4 eggs
1 1/2 c. heavy cream 1/2 t. salt

Wash, pick over, hull and mash berries. Sprinkle with sugar, cover and let stand several hours; then squeeze through a double thickness of cheesecloth. Mix cream, milk, whites of eggs beaten until stiff, and a few grains salt. Freeze to a mush, using three parts finely crushed ice to one part rock salt. Add fruit juice and continue freezing. If fruit is very acid more sugar may be necessary. Partial freezing before adding the fruit juice insures a better "strawberry" flavor.

Sunshine Preserves

Prepare a heavy syrup, using sugar equal in weight to the weight of the berries, and just enough water to dissolve the sugar easily. Drop in washed and hulled strawberries and cook for 20 minutes. Pour into large platters and set in good sunlight until thick and ruby red in color. Seal in jars. A marvelous flavor results.

Strawberry Batter Pudding

Mix 1/2 c. of flour with 1/2 c. of milk to a thin paste, and add 2 1/2 c. milk and 1/2 t. salt. Cook, stirring carefully, until mixture boils. Add 1/4 c. melted butter and three beaten eggs. Put into a greased baking dish a quart of ripe strawberries, sprinkle over with a scant cup of sugar, let stand 10 minutes, pour the batter gently in at the sides of the dish, cover

ash. This basic or alkaline ash helps counteract the acid effect of meat and protein foods, and thus is of great value to the human body.

Woody Part Also Useful

Not even the woody, indigestible part is useless. This material adds bulk and "roughage" and in this way greatly aids in the proper elimination of waste products.

Begin early to teach the children to like fruits and vegetables. Two "first aids" to this are for the parents to show a liking for them, and for the foods to be properly cooked and served. This does not mean highly seasoned foods, but simply cooked to bring out and develop the natural flavor.

Authorities all agree that we Americans could make our diets much better by replacing much of our meats and sugars with fruits, vegetables and milk.

Scratches on Furniture

SCRATCHES on mahogany or walnut furniture can be quickly removed by rubbing vigorously with half a Brazil nut or walnut meat. The oil in the nut refinishes the wood.

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Table of Abbreviations

1 t. equals 1 teaspoonful.
1 T. equals 1 tablespoonful (3 t.).
1 c. equals 1 cupful.
1 pt. equals 1 pint (2 standard cups).
1 qt. equals 1 quart (2 pts.).
Powdered sugar means confectioners' sugar.

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Engineering for the Fruit Grower

By E. W. Lehmann

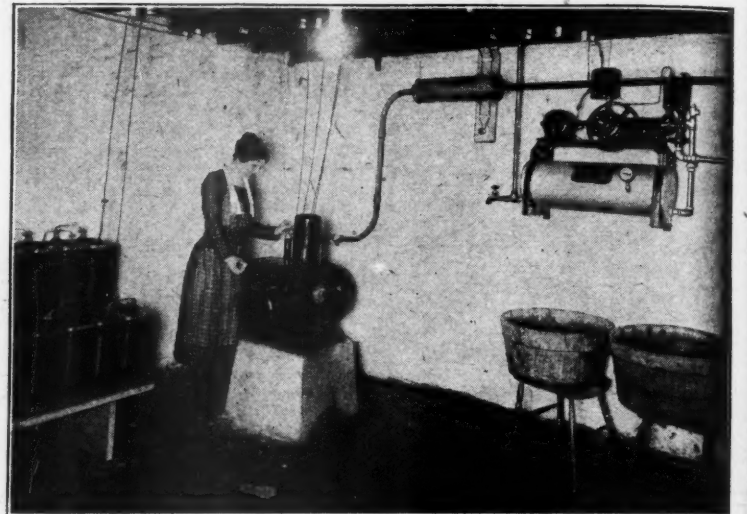
Electricity for the Fruit Grower

ELECTRICITY has not been as generally adopted for power purposes on American farms as on the farms of many European countries. The American farmer has really been backward in this respect. At the present time less than five per cent of our American farms have electricity available. There is no question but that this source of power would be a boon to them in improving home life and in reducing the labor in connection with many of the operations.

Present Tendency in the Use of Power

There is no question but that the present tendency is toward a greater

electric energy were required to wash 100 pounds of clothes, about four weeks' washing. It required 11 kilowatt hours of electric energy to iron 100 pounds of clothes, one-half kilowatt hour to separate 1000 pounds of milk, one-half kilowatt hour to cut one ton of silage and put it in the silo, and 6.7 kilowatt hours to elevate 1000 bushels of corn 30 feet into a crib. Assuming an energy charge is made of five cents per kilowatt hour, which is a fair power charge, it is easy to determine the cost of the operations mentioned. On this basis it would cost less than 35 cents to elevate 1000 bushels of corn into a



A small electric plant and water system installed in the basement of a farm home

use of mechanical and electrical power. According to census reports, Illinois leads all other states in the number of tractors in the state, having a total of nearly 50,000. The number in all states has more than doubled during the past five years. There is a greater interest at present in the use of electricity on the farm than ever before. Due to the great number of power transmission lines and rural extension lines, there is also a greater opportunity of serving the farmer with electricity than ever before.

Farmers Appreciate Electricity for Lights

The first consideration of the farmer who gets electric service is lights for the home. In a great many instances when farmers get electric energy from power lines, the only use made of it on the farm is for lights. They lose sight of its value in many motor operations where the energy consumption is low and the cost of operation is a small item when compared with the time saved. The chief question the prospective user of electricity would like answered is, "Will the use of electricity on the farm lower the cost of production?"

No one questions the desirability of having electricity to make the home life more attractive. However, there are too many who fail to appreciate the fact that when electricity is available they have a willing servant that will pump the water, separate the cream, milk the cows, grind the feed, saw the wood and do all the other jobs where power is needed, at a reasonable cost and minimum of effort.

In addition, it provides refrigeration at a cost that is not excessive, and it provides heat for cooking.

In a recent report of the work on the use of electricity in agriculture conducted by the Farm Mechanics Section of the Illinois Agricultural Experiment Station, it was shown that one and one-half kilowatt hours of

crib 20 feet high. Similar uses of electricity can be found on the fruit farm, in the home and in the packing shed.

Permanent Farm Buildings

A BIG item of yearly expense on every farm is the building expense. When we think of permanent buildings we often think that the maintenance part of this building expense will be eliminated when we build permanently. This is to a large extent correct, but it depends on what we mean by permanent buildings. Is a building that lasts a hundred years a permanent building? If so, many of the old New England and southern frame buildings will qualify in the permanent class. George Washington's old home at Mt. Vernon, Va., is a frame house. There is no question but that the painting bill and other maintenance costs on these old buildings are large items.

The old frame buildings that are still standing that were built a century or more ago, while not built of permanent materials in the every-day use of this term, were built for permanence. In the first place, adequate foundations were provided. The frame structure was built strong to resist the storms, and the walls and roof were made tight to resist the rain and snow.

While we have examples of wooden buildings that have withstood weather and storm for centuries, we also have examples of buildings of masonry materials, which we think of as being permanent, that are dangerous after 30 or 40 years of service and must be torn down. This situation prompts the question, "What is a permanent building?"

To have a permanent building we must have more than permanent materials. According to Henry Gleason of the Iowa Experiment Station in a re-

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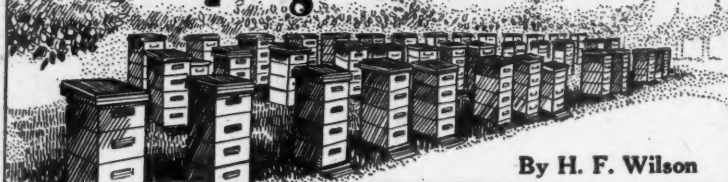
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Bee Keeping for Fruit Growers

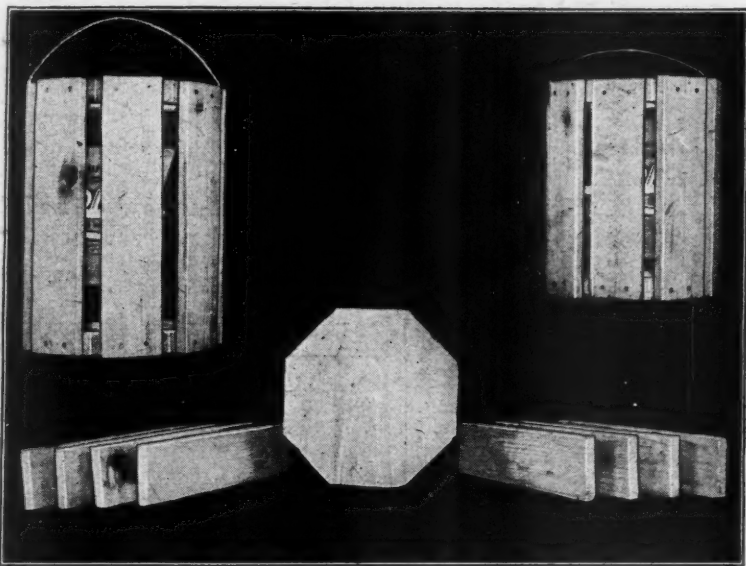


By H. F. Wilson

Containers and Labels for Honey

A GOOD salesman may sell an inferior product, and a poor salesman may be able to sell a superior product, but a good salesman becomes a superior salesman when he has a superior product because it gives him the confidence to make his sales talk interesting and vigorous. Well designed and neat appearing labels and containers are silent salesmen for any product. A poor label will very often prevent sales of a superior product. This is particularly true for honey, since the public looks upon honey as a food of superior quality and one which is supposed to be pure and clean. Dusty labels and rusty cans

product on the inside. It would be very much better for the honey industry if only standard five and 10-pound pails were available. These pails, if properly packed, will come through the mail in as good condition as when they were delivered at the post office. Do not put honey in two and one-half or three-pound cans. If you have a trade demanding this size of a package, put it up in glass. There are excellent glass containers holding one-half, one, two, three, six and 12 pounds of honey, and when displayed with a neat label, they make very attractive packages. However, they are more costly than the tin containers and



The two upper figures show crates used for shipping honey by parcel post. The lower figure shows the materials from which a crate is made

are a sure indication of the lack of cleanliness on the part of the producer. Lack of attention to details in the preparation of containers for selling honey is very apt to break down the confidence of the consumer. Therefore, make up your mind that if you do not already have a nice, neat, well-printed label, you will secure one before the next selling season.

Too Many Types of Containers in Use

The large packing industries have made lengthy studies of the kind of containers and labels to use in selling their products. The honey producer has made practically no effort along this line, and as a result there are today many different types of glass, tin and pasteboard containers used for selling honey. These packages hold all the way from one-half pound to 12 pounds, and most of the labels put on them are poorly gotten up and printed on inferior grades of paper. As a rule, they fade out quickly and give the entire package a sort of faded and unclean appearance. One type of honey container now more or less commonly used, is very undesirable. This is the half gallon and gallon screw cap cans used for shipping by parcel post. Since these containers have screw caps, the beekeeper feels that they will pass through the mail in a satisfactory condition. It is true that the honey does not leak out, but as a rule the pails are so battered when they arrive at their destination that they give a very poor impression of the

higher prices must be charged for them. In place of the six and 10-pound glass jugs, five and 10-pound pails will be found satisfactory, because the public is used to buying honey in these containers. However, in displaying honey in glass, the beekeeper should be very careful to strain his honey well and see that there are no specks of wax or propolis in the honey.

In making up your label, see that the color scheme is pleasing to the eye and arrange the wording so that it is uniform and well arranged in the space available. The word "honey" should be prominent and should be given an important place in the label. Above all, do not economize by using small labels on large packages. Separate labels should be printed for both five and 10-pound pails when these are used, and labels for both of these pails should extend nearly to the upper and lower edges and from one bail ear to the other.

Pack Honey Carefully for Shipping

IT IS a simple matter to pack pails of honey so that they may be shipped by parcel post without leaking. It is also unnecessary to solder the cover if the pail is crated similar to those shown in the accompanying illustration. For the beekeeper who is shipping honey to any large extent by parcel post, it will pay to prepare beforehand octagonal blocks of wood,

as shown in the illustration, that are just the size of the diameter of the pail. Eight side strips of wood should be prepared for each pail and one should be nailed on each side of the eight sides of the octagonal blocks.

In crating the pail, first nail two of the upright strips to the base on directly opposite sides of the block, then place the pail between these two strips, lay the top block on top of the pail and push down as hard as possible while nailing the two upright strips to the top block. The other upright strips may then be nailed on, and the pressure of the top block against the cover will prevent its jarring loose even though the package receives rough handling.

After the pail is crated, the ball should be attached for handling during transportation. Packages with bails attached always come through the mail in better condition than those without bails. To provide against loss of packages in transit, always have them insured.

How to Ship Comb Honey

Losses to the beekeeper through improper packing of comb honey for shipment is tremendous. These losses could be reduced to less than five per cent if sufficient care were taken in preparing the honey for shipment. At the present time, comb honey is shipped in single and in double tier shipping cases and in pasteboard cartons. Cartons should never be used because they are not satisfactory for display in the store. The present market demand is for the double tier wooden case rather than the single tier case. Single cases to be shipped by express should not be covered by any kind of wrapping material. A good sized label marked "Fragile" and stating plainly that the package contains honey, should be placed on every case. Unless one has had considerable experience in preparing comb honey for parcel post shipment, it is unwise to attempt comb honey shipping by this method.

Packing Materials for the Beehives

EXPERIMENTS just concluded at the Wisconsin Agricultural Experiment Station show that baled shavings is the best material for packing beehives, but clover chaff and forest leaves are quite satisfactory if thoroughly dry. Clover chaff and straw, when used for packing, should be gathered in the middle of the summer and thoroughly dried out before packing time. These experiments show that straw as ordinarily taken from the field is not a very satisfactory packing material, because when it contains as much as 10 per cent moisture the insulating value is greatly reduced.

A bulletin on "Winter Protection for Bees" is soon to be published by the Wisconsin Experiment Station and will be available to beekeepers who write in for it.

Date Growing—A Fast Developing Industry

(Continued from page 8)

California it is estimated that a date palm will yield from 75 to 100 pounds of dates the sixth year and 250 pounds per tree by the tenth year. The processed and packaged dates at present retail for from 20 cents to \$1 a pound. Plantings run about 50 palms to the acre. In Arizona, a check was made on 25 Deglet Noor trees at the Tempe garden and in the fall of 1924 they produced 2650 pounds of fruit which sold for 40 cents a pound.

Fresh dates are a rarity in the Middle West and East. Even in the sections where they are grown they are highly prized and eagerly bought. Date growers usually find it necessary every season to return some checks because there are not enough dates to go around. Last season hundreds of orders were turned down by the director of the Tempe garden.

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Statement of the Ownership, Management,
Circulation, Etc., Required by the Act
of Congress of August 24, 1912.of AMERICAN FRUIT GROWER MAGA-
ZINE, published monthly at Chicago, Ill.,
for April 1, 1926.

State of Illinois, County of Cook, ss.—Be-
fore me, a notary public in and for the
state and county aforesaid, personally ap-
peared Harry W. Walker, who, having
been duly sworn according to law, deposes
and says that he is the business manager
of the American Fruit Grower Magazine
and that the following is, to the best of
his knowledge and belief, a true statement
of the ownership, management (and if a
daily paper, the circulation), etc., of the
aforesaid publication for the date shown in
the above caption, required by the Act of
August 24, 1912, embodied in section 411,
Postal Laws and Regulations, printed on
the reverse of this form, to-wit:

1. That the names and addresses of the
publisher, editor, managing editor and
business manager are:

Publisher—Magazines, Inc., 53 W. Jack-
son Blvd., Chicago, Ill.

Editor—None.

Managing Editor—C. E. Durst, 53 W.
Jackson Blvd., Chicago, Ill.

Business Manager—Harry W. Walker, 53
W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If owned by a cor-
poration, its name and address must be
stated and also immediately thereunder
the names and addresses of stockholders
owning or holding 1 per cent or more of
total amount of stock. If not owned by a
corporation, the names and addresses of
the individual owners must be given. If
owned by a firm, company or other unin-
corporated concern, its name and address,
as well as those of each individual mem-
ber, must be given.)—C. A. Tupper, L. A.
Staley, H. W. Walker, J. E. Montgomery
(all at 53 W. Jackson Blvd., Chicago, Ill.);
C. W. Price, 15 Park Row, New York City;
B. G. K. Meister, 501 The Arcade, Cleve-
land, Ohio.

3. That the known bondholders, mort-
gagees and other security holders own-
ing or holding 1 per cent or more of total
amount of bonds, mortgages or other securi-
ties are: (If there are none, so state.)—
None.

4. That the two paragraphs next above,
giving the names of the owners, stockhold-
ers and security holders, if any, contain
not only the list of stockholders and securi-
ty holders as they appear upon the books
of the company but also, in cases where
the stockholder or security holder appears
upon the books of the company as trustee
or in any other fiduciary relation, the name
of the person or corporation for whom such
trustee is acting, is given; also that the
said two paragraphs contain statements
embracing affiant's full knowledge and be-
lief as to the circumstances and condi-
tions under which stockholders and securi-
ty holders who do not appear upon the
books of the company as trustees, hold
stock and securities in a capacity other
than that of a bona fide owner; and this
affiant has no reason to believe that any
other person, association or corporation has
any interest direct or indirect in the said
stock, bonds or other securities than as so
stated by him.

HARRY W. WALKER,

Business Manager.

Sworn to and subscribed before me this

24th day of March, 1926.

A. C. BAMBERGER,

Notary Public.

(My commission expires, Aug. 11, 1929.)

Fire Blight of Apples and Pears

(Continued from page 19)

eased wood during the dormant sea-
son is recommended. It is, however,
impractical to attempt to cut out dur-
ing the spring or summer the thou-
sands of blighted twigs that may ap-
pear in large trees. The germs of
blight in these dying twigs are very
short lived and may have run their
course and become incapable of caus-
ing new infection before the twigs
are cut away.

2. *Control injurious insects.*—This
includes fruit tree borers, sucking in-
sects like aphids and leaf hoppers,
and biting and chewing insects like
the curculio and the codling moth.
There are other good reasons for the
control of these insect pests. Fire
blight alone, however, is a sufficient
reason for their control, as they may
all at times become carriers of the
disease.

3. *Regulate the growth of the fruit*Seckel, Lincoln, Anjou, Tyson and the
like.

In the case of apples, most of our
standard varieties may be grown in
any locality without serious injury
from fire blight if the grower gives
attention to the control measures
mentioned above. He will find, how-
ever, that usually the Jonathan, York
and Yellow Transparent are among
the worst of our common varieties
to be affected by fire blight. On the
other hand, the most resistant varie-
ties to the disease are usually Grimes,
Delicious and Winesap.

Need of Co-operation

As in the control and prevention
of other serious diseases of fruit
trees and insect pests, much can be
accomplished by community effort or
co-operation. It is evident that one
grower who allows his pear trees to



The trunk of a pear tree infected with blight. Note the honey-like exudation oozing
from the margin of a fire blight hold-over canker

trees.—It is more important that the
pear make a slow, steady and uni-
form growth than the apple, because,
as a rule, it is more seriously affected
by fire blight. Both fruits, however,
should be given close attention as
regards growth. The grower at all
times should see that the trees make
a fairly strong, vigorous, satisfactory
growth. With young trees this is
very important. Should fire blight
become serious, however, it may be
necessary to check the growth of the
trees by withholding fertilization and
cultivation, one or both practices, de-
pending upon the needs in each in-
stance.

Value of Resistant Varieties

Where fire blight is a serious prob-
lem it will behoove the grower to
give some attention at least to the
matter of planting resistant varieties.
In the case of the pear, we seldom
plant the Bartlett because it is so
susceptible to the disease. The
Kieffer is perhaps more resistant
than any other commercial variety
grown in Missouri. With the Kieffer,
however, the grower should plant one
or more other sorts in order to se-
cure the benefits of cross pollination.
He may profitably plant with the
Kieffer such varieties as Garber,

become badly affected by fire blight
may furnish a source of infestation to
an entire community. Other growers,
although practicing the best fire
blight control measures at great ex-
pense, may fail on account of the one
negligent or indifferent grower.

Many states, particularly in the
West, have passed stringent laws re-
garding the control and prevention of
fire blight. Since fire blight may be
classed as a dangerous plant disease,
it comes within the scope of the new
Plant Inspection Law passed by the
Missouri General Assembly in 1925.
The passing of laws regarding such
matters is of no value, however, un-
less the fruit growers individually
and collectively are willing to en-
force them. When the growers them-
selves champion such laws, they be-
come educational as much as regula-
tory, and the producer and the indus-
try both profit.

Insured

He: "It wouldn't be much trouble
for us to marry. My father is a min-
ister, you know."

She: "Well, let's have a try at it,
anyway; my dad's a lawyer."—Voo
Doo.

A one-pipe smoker finds his tobacco

Mr. Lilienfeld's lone briar
is now cool and soothing
again, he says

The problem of keeping an only pipe
sweet, cool, and soothing has been solved
by a Long Island haberdasher.

On the chance that a number of pipe
smoking readers of this magazine may
be in the same predicament that Mr. Lil-
ienfeld found himself two years ago, we
publish his letter for what it is worth:

Richmond Hill, L. I.

Larus & Bro. Co.
Richmond, Va.

Gentlemen:

I am sorry I cannot compete with the
gentleman who is the proud possessor of
45 pipes of all shapes, forms and makes.
I am the owner of one poor solitary pipe.

This pipe I have carried many long
years. At times it has been a good pal,
soothing me with its cool, mellow smoke;
but at other times—Lord, how it could
bite! I was at a loss to ascertain the rea-
son why. Every time I changed the brand
I would imagine that I had discovered a
new find; but when another new tin was
bought it was never the same.

Somehow or other I ran across Edge-
worth. I believe it was recommended me
at some cigar store. Since I was always
ready to take a crack at anything I
bought some. What a relief was the first
pipeful! The old briar pipe became sooth-
ing again. Here surely was a find. I
thought to myself, "Will it last?"
Strange or otherwise, it has lasted. I have
now smoked Edgeworth for the past 2
years, and believe me, someone will have
to step some to make me switch.

Yours truly,
S. Z. Lilienfeld.

Well, it all comes down to this: The man
with forty-five pipes and the man with
one pipe are both members of the same
Club. Any tobacco that can satisfy those
two widely different types of pipe smok-
ers, and the many types in between, is
worth while trying—don't you think?

To those who have
never tried Edge-
worth we make this
offer:

Let us send you
free samples of Edge-
worth so that you
may put it to the
pipe test. If you
like the samples,
you'll like Edge-
worth wherever
and whenever
you buy it, for it
never changes in
quality.

Write your
name and address to Larus & Brother
Company, 13R S. 21st Street, Rich-
mond, Va.

We'll be grateful for the name and
address of your tobacco dealer, too, if
you care to add them.

Edgeworth is sold in various sizes to
suit the needs and means of all pur-
chasers. Both Edgeworth Plug Slice
and Edgeworth Ready-Rubbed are
in small, pocket-size packages, in hand-
some humidor holding a pound, and
also in several handy in-between sizes.

To Retail Tobacco Merchants: If
your jobber cannot supply you with
Edgeworth, Larus & Brother Company
will gladly send you prepaid by parcel
post a one- or two-dozen carton of any
size of Edgeworth Plug Slice or Edge-
worth Ready-Rubbed for the same price
you would pay the jobber.

On your radio—tune in on WEVA,
Richmond, Va.—the Edgeworth station.
Wave length 256 meters.



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cluding Berth
and Meals.

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Detroit Chicago



On the luxurious steamships *Eastern States* and *Western States*. Music, dancing, wireless, and deck games aboard. Hostess in attendance. Unlimited stopover privileges at Mackinac Island and either Detroit or Chicago. Service three times weekly from Detroit June 24th to Sept. 4th; from Chicago June 26th to Sept. 6th. Tickets limited to sleeping accommodations.

What patrons say:

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to Detroit**

**Grand
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"This trip has been so far beyond our expectations that I want you and your company to know it."
"Meals and service would be a credit to any hotel in the country."

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Overnight Service daily to Nov. 1st, between Buffalo and Detroit on the largest steamers of their type in the world. Fare \$6.00 one way; \$11.50 round trip. Nightly to Dec. 1st, between Cleveland and Detroit \$3.50 one way; \$6.50 round trip. Also daylight trips between Cleveland and Detroit during July and August. Autos carried. Wireless aboard.

Buffalo to Chicago or Chicago to Buffalo. Special round trip rate including berth and meals on all steamers in effect every Monday, June 24th to Sept. 6th, 8-day limit. Stopovers at Niagara Falls, Detroit, Mackinac Island, or Chicago.

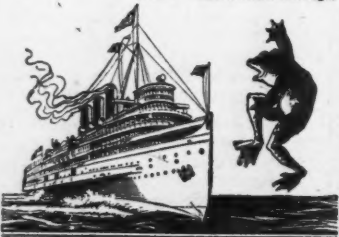


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Profitable Poultry

By Ralston R. Hannas

Growing the Young Stock

THE BROODING season is now past and we come to what is known as the rearing or growing season. There should be very little, if any losses, but that does not mean that there are no problems in this end of the poultry yard or that no attention will be needed by these young birds. The general practice where these growing birds are yarded and do not have free range is to give them a grain feeding night and morning, what they will clean up in about 15 minutes. Just now, this may amount to about eight or 10 pounds of grain per 100 head of young stock. It is also well to keep a growing mash before them in hoppers where they can help themselves. Any good commercial growing mash will serve the purpose. Where there is practically free range, they do not need so much feed. After harvest, that is, after the grain is cut and stacked waiting for threshing, or after threshing, for that matter, birds can be turned into these fields and no grain need be fed in addition to what they can pick up.

Water is mighty important in rearing young birds, which means that there must be an abundance of it at all times. A brook running through the yards is the ideal watering system. Unfortunately, such a system is not had on every farm, nor is it possible to have a piped water system always. Therefore, some way must be devised to keep a plentiful supply of water on hand for the birds that must be fresh at all times. A large barrel or hoghead may be fitted up with a spigot in it and filled with water. By placing the barrel on its side and allowing the water to drip from the spigot into a large pan, tub, or trough, the birds will be supplied with water for several hours. It may be necessary to fill this twice a day or even oftener in very hot weather. Needless to say, this barrel should be placed in the shade so the water may be kept as cool as possible. The birds must have water, else they can't be expected to make the proper growth.

Shade is the next important item to consider. On general or fruit farms, where birds have the run of the orchards or of the entire farm, this need not be worried about, as there is always sufficient shade. However, where it is necessary to keep them yarded, the matter of shade might prove to be a problem. If there are no trees or shrubbery and it is not possible nor practical to plant something that will supply shade, artificial shade must be supplied in some way, such as making a shed with boards, brush or canvas, about three feet high, so the birds will have a place to go during the day when the summer sun is the hottest. Of course, they do not mind the sun in the early morning or late afternoon, but during the middle of the day, they are grateful for some shelter from its hot rays.

Green food is another essential during the growing period, as indeed it is at any time of the bird's life. Where there is free range, this is no problem at all, but it is in the case of yarded flocks. Some provision must be made to see that they get their share of this food, either by cutting green food from a nearby field and throwing it in the yard, or by growing some green crop especially for the growing birds that they can eat at will. This should have been looked to sooner and the necessary seed planted so that the green food would be available now.

A matter that does apply on all farms where there are growing birds, whether they are yarded or whether they have free range, is the possibility of poisoning. Since birds pick at everything they see, dump heaps where old paint cans, containing paint

skins, or the residue from spray mixtures, or anything else of a poisonous nature is apt to be, should either be covered with soil or fenced off so the birds cannot get at them. A number of sudden deaths of birds on range may indicate the presence of something that is poisoning them, and the cause should be investigated immediately. It frequently happens that small animals, such as rabbits, die under a chicken house, or somewhere else where the chickens can get at the carcass and pick at it. Eating this decayed flesh will often cause ptomaine poisoning. A trip over the ground that the young stock are ranging on at least once a week to look for carcasses of this kind or of birds that have died may save considerable loss. All such carcasses should be buried deeply or burned.

Capons

SINCE this spring has been a late one in many sections, the possibilities are that many chicks have been hatched rather late. There will therefore soon be many young cockerels that will just be about right for caponizing. Age, of course, does not determine whether or not a cockerel should be caponized; size, rather, is the indicator. Cockerels that weigh about a pound and a half are right for caponizing. If an attempt is made to caponize when the bird is not so far developed as this, there will be difficulty in performing the operation, as there will be also if the bird is much larger than this size. In the latter case, death is likely to result, for the organs will be too far developed, and a blood vessel may be ruptured. Also, the operation may not be successful because all of the organ may not be removed, and a bird with the characteristic male appearance and growth is the result.

Immediately after the operation, the birds should be fed on soft feed for a day or two, after which they may be given the regular ration. It is wise to mark the birds that have been caponized so that if the operation was not a complete success and male characteristics develop, this bird will not be put in with breeders by mistake the following spring. A good way to mark these birds is by cutting off one toe nail, say the middle one on one foot. All birds that have been caponized ought to be kept by themselves in a small yard for two weeks so that they may easily be caught and examined for wind puffs. These are apt to develop at the point of cutting. They are not serious, and may be taken care of merely by slitting them on one edge, that is, not on top of the puff where it is all air, but right next to the body where the puff starts to expand. This may be done with a knife. It may have to be done again after a week, if it grows again, but seldom more than these two slittings are necessary.

Birds thus caponized that have the free run of the farm, especially the grain fields, have a wonderful opportunity to take on weight at a very small expense to the owner. Capons thus grown may be made very profitable, and will prove to be a valuable sideline to the farmer.

The Laying Flock

JUST now, and from now on, there are apt to be a number of cases of prolapsis of the oviduct in the laying flock, especially where there are a number of good layers. This is also likely to occur in flocks that have been shut in all winter and which have not been allowed to run out until late in the spring. In flocks that have the run of the orchard or farm, how-

ever, there is not a great deal of danger of this condition becoming general unless a highly concentrated feed is being fed.

The thing to do is to take the bird that shows the oviduct protruding from the vent out of the flock. An effort may be made to push the protruding organ back into the vent and apply carbolated vaseline. The bird should then be kept by herself until healing occurs. This will keep the other birds from picking her, for it is not wise to let this habit of picking get started in the flock.

A constant supply of green food will help somewhat to prevent this condition and is necessary to maintain egg production. When prolapsis occurs in only a few birds, it is merely a matter of individual conditions, that is, these birds are not able to stand up under the strain of egg production. There is nothing else that can be done other than what has been indicated. On the other hand, when there are a number of such cases, the indications are that something is wrong with the management, and a cause should be looked for at once. It may be that there is too much meat scrap in the ration or that the hens are getting too much mash, all of which means that they are being forced too hard for eggs. There should never be more than 20 per cent of the mash in the form of meat scrap; if there is more than this, cut it down to this amount immediately. In fact, it might be a good plan, where there are a number of cases, to cut the meat scrap to 15 per cent for about 10 days, or until the trouble subsides. If the birds are getting at least 10 pounds of grain per 100 birds per day, and are cleaning it up, there ought not to be any trouble as to their eating too much mash, for with this amount of grain they will balance their ration with the necessary mash.

Where birds have a tendency to be thin just now after the heavy season of production, a moist mash may be given to help keep them in good condition, for their production is more likely to hold up if they keep in good condition. This mash may be composed of equal parts of rolled oats, corn meal, and semi-solid buttermilk. This is not so essential where birds have had free range and still have it.

Rose Bugs

DURING the month of June, many sections are troubled with rose bugs or rose chafers. Chicks like to eat these bugs, but the results are disastrous, for they are poisonous to young birds. Many chicks that have died suddenly have been found with crops full of these insects. It is, of course, impossible to keep these bugs away, but it is possible to keep the chicks away from the bugs. This can be done by keeping them shut in for a week or 10 days while the bugs are prevalent, for they apparently do not stay much longer than that. Bushes and shrubbery in the vicinity of chicken coops may be sprayed with self-boiled lime-sulphur.

New Spray Material for Bacterial Spot

DR. H. W. ANDERSON of the University of Illinois presented to the annual convention of the Illinois State Horticultural Society in December the results of some experiments in the control of bacterial spot on peaches. In these experiments sodium silicofluoride was tried along with other materials.

The sodium silicofluoride gave promising results in the control of bacterial spot, and no apparent injury resulted to the foliage. While the results are encouraging, Dr. Anderson believes further experiments should be conducted to prove the merits of the material before growers should be advised to use it on a commercial basis. Further tests of this material will be watched with general interest, because bacterial spot is a serious disease.

The G-BOY

Scores a Genuine Triumph

The enthusiastic welcome given the G-BOY, Graham Brothers new one-ton truck, has established this fact:

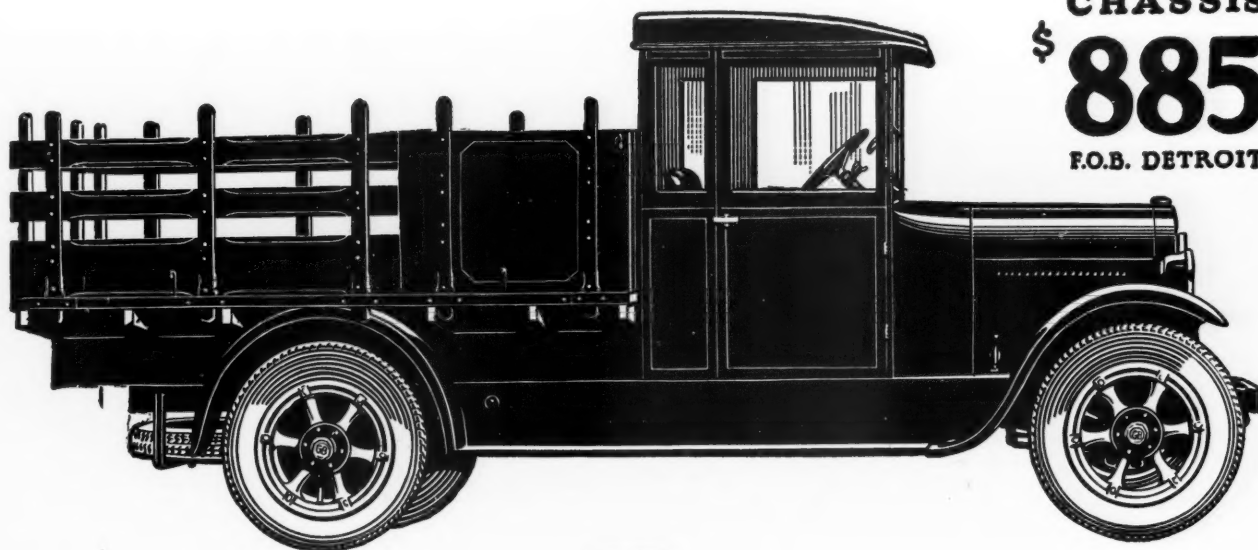
It is recognized at once as a real—a major—contribution to commercial haulage.

Revolutionary improvement in balance effected by a new system of weight distribution, compact wheel base, ease of handling, generous body capacity, advantages of the ever dependable and always economical Dodge Brothers engine—all these important factors enter into the G-BOY'S marked success.

And then the price! So low that only Graham Brothers, the largest exclusive truck makers, with huge buying and building capacity, could possibly achieve it.

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Always Consider what you get for the price you pay!

Not only, "What will the car cost?"...

But, "What will I get for my money?"...

This is the question of great importance!

It is, for several reasons, especially applicable in buying a car in the low-price field. And it is one of the reasons why Chevrolet has become the world's largest builder of gear-shift automobiles.

In Chevrolet, you get more for little money than in any other car built.

Chevrolet's dry-plate disc-clutch and modern three-speed transmission, with its heavy steel gears, afford gear-shifting of remarkable ease—and the application of abundant power in any of the three forward speeds or reverse.

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All closed bodies are by Fisher, built on the principle employed on all high-priced cars—selected hard wood and steel.

Chevrolet's modern, semi-reversible worm and gear-steering assembly is handled with the utmost ease, enabling the driver to keep to the road under all conditions.

Chevrolet's many other modern, quality-features provide you with a car built sturdily, affording every modern convenience and comfort—quality features that you would look for only on cars of much higher price.

And this year, Chevrolet is breaking all records of the past

because it not only possesses vital improvements that bring about a remarkable performance, but in addition, every passenger car model is offered at a new low price.

Tens of thousands of new buyers are turning to Chevrolet because they ask themselves this question: "What will I get for my money?" and in seeking the answer, they find, more than ever before, that Chevrolet offers a value that is amazing.

Take a ride in this Improved Chevrolet! You will find it an absolute revelation—not only for smoothness, snap and power—not only for flexibility and riding comfort—but also for the easy-driving, effortless-control, made possible by its modern design.

See your nearest Chevrolet dealer! Ask for a demonstration!

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The \$510 f. o. b. Flint, Mich.
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QUALITY AT LOW COST